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# Medical Times

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## CONTENTS

### GENERAL SCIENTIFIC.

Syphilis of the Central Nervous System...353  
WALTER JAMES HEIMANN, M. D., New York.

Bureau of Mines' Studies of Occupational Diseases...356  
W. A. LYNOTT, M. D., Washington, D. C.

The Meaning and Uses of Pain...359  
LAWRENCE IRWELL, M. A., B. C. L., Buffalo, N. Y.

A Diphtheria Epidemic in an Industrial School...362  
N. P. BROOKS, M. D., New Lebanon, N. Y.

### FIVE MINUTE CLINICAL TALKS

Strophanthus and Strophanthin...364  
EDWARD E. CORNWALL, Brooklyn, N. Y.

Conservation of Hearing by Simple Mastoidectomy...365  
HAROLD HAYS, M. D., New York.

Scabies...366  
EDWARD H. MARSH, M. D., Brooklyn, N. Y.

Functional Diseases of the Stomach...366  
GEORGE F. BUTLER, M. D., Kramer, Ind.

Psychologic, Sanitary and Therapeutic Wedges...367  
W. J. FAIRFIELD, M. D., Norwich, N. Y.

### THE DIAGNOSTIC LABORATORY

...368

### AM. ASSN. CLINICAL RESEARCH.

Auto-Condensation in the Treatment of High Blood Pressures...370  
FRITZ C. ASKENSTEDT, M. D., Louisville, Ky.

### SURGERY...372

### DIAGNOSIS & TREATMENT...373

### CORRESPONDENCE...374

### EDITORIAL.

Bleeding the Doctor; A New Sport...375  
Tempora Mutantur...375  
High Heels and Feminism...375  
The Shadows of Coming Events...375  
Penalties For Not Advertising...376  
An Unseemly Controversy...376  
Challenging Facts...376  
Surgical Preparedness...376  
Birth Control: Some Pertinent Questions...376  
Shouting Lymphocytes...377  
Apropos of Some Recent Remarks of Secretary of War Baker...377

### MISCELLANY...377

### THE PHYSICIAN'S LIBRARY...379

### PEDIATRICS...380

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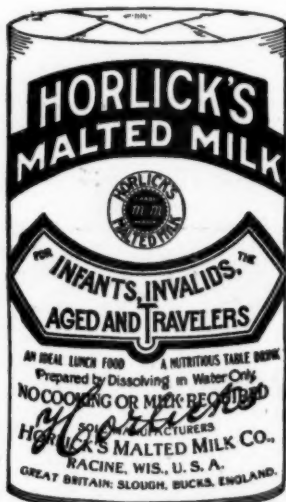
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## General Scientific

### SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.

#### Therapeutic Aims and Possibilities.

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The most interesting problem of syphilis of the central nervous system is its treatment. Clinically, there are five well recognized conditions: paresis, tabes, meningeal and vascular syphilis and gummata. These conditions may rarely co-exist in various combinations. Paresis is virtually encephalitis, and tabes is chronic myelitis leading to sclerosis. Involvement of the meninges leads to their thickening. Endarteritis or panarteritis cause local disturbances of nutrition, and such changes as may occur from occlusion or rupture of the affected vessels. In the early stages of systemic syphilis meningitis or mere irritation of the meninges may arise, or rarely precocious forms of the conditions above enumerated. Not uncommonly, however, subjective evidence of early involvement is given by headaches, and objective evidence by changes in the cerebrospinal fluid, notably pleocytosis, and the presence of the globulin and Wassermann reactions.

That paresis is actually syphilis has been proved by Noguchi and Moore, who demonstrated the spirochaete in a large number of autopsied brains, and by Tomaszewski and Foerster and Udo Wile, who obtained living spirochaetes from paretics by trephining. Furthermore, in a large majority of patients affected with these diseases, the blood and cerebrospinal fluid give evidence of pathological changes. The important links uniting these conditions with syphilis are too well known to require further emphasis; their clinical aspects are also too familiar to require recapitulation, for the subject has become familiar to all in the recent years of intensive study of syphilis.

Pathologically, syphilis of the central nervous system may be considered as an inflammation of the nerve tissue (tabes and paresis), of the meninges, of the vessels. One special form of inflammation, the gumma, is granulomatous. The lesions terminate either in softening or sclerosis. Paresis and the nutritional disturbances due to inflammation of the small brain vessels,

and thrombosis all lead to softening; tabes, and often meningitis, end in sclerosis, and gummata terminate either in scarring or softening. It is no invariable rule that these processes are single, for all sorts of combinations are known.

Whatever and wherever the lesions, they are caused primarily by spirochaetes and the effort of the invaded tissue to protect itself against and to destroy the former. The organisms, having reached the brain, cord, or meninges through the blood and lymph circulation proliferate locally, transmigrate the vessel walls and often deposit themselves in the tissue at some distance from the penetrated vessels. This is a most significant fact, the importance of which will later be shown in discussing the problems of therapy. Scarring and softening are consecutive phenomena, not immediately due to the spirochaetae, but representing on the one hand necrosis and on the other the usual effort at repair common to all tissues. Gumma formation signifies the striving of the body to incarcerate an invader, and is analogous to what takes place in the lungs in tuberculosis. From the standpoint of therapeutic endeavor, it is far more essential to grasp the microbiological than the clinical characteristics of central nervous syphilis.

The ideal sought in treating central nervous syphilis is anatomically a *restitutio in integrum* of the morbid tissue and clinically the removal of the symptoms and signs of the disease. Important among the latter group of aims are the conversion of the positive Wassermann reaction to negative in the blood, and in the cerebrospinal fluid the elimination of the Wassermann, globulin and gold chloride reactions, and the quantitative reduction of lymphocytes to normal. The extent to which these desirable ends can be approached will determine the value of therapy. The limitations of therapy are partly anatomical, and partly inherent in our therapeutic agents and in our means of employing them.

In scrutinizing the anatomical limitations of therapy several factors already indicated must be borne in mind, such as the nature of the pathological process, the extent thereof, and the site involved. When softening or sclerosis are present, the process is obviously almost beyond the pale of medicinal control. Even with successful arresting of the process, the damage already done, which is irreparable, and which is per-



manent in the form of loss of substance or scarring, leads to clinical phenomena which defy the control of drugs and which are no longer syphilitic, but the result of spent syphilitic activity. Should the process not have been extensive, or should it have escaped an important area of the central nerve axis, the practical damage may be slight, and with the subsidence of activity, the essential damage to the patient may be negligible. But a limited involvement of the cortex near the left fissure of Sylvius, or a gumma in the internal capsule, or near the optic chiasm, would be of greater significance than similar lesions near the right fissure of Sylvius. It is necessary only to recall the anatomy of the brain, the location of the various centres and the course of the nerve tracts to appreciate this factor. The scar after a gumma in the internal capsule would be of little less harm to the patient than the active process itself. In *tabes dorsalis*, for instance, if the process is not too extensive or of too long duration, the permanent damage may evidence itself, after successful therapy, only in ataxia, a trifling burden to bear when compared with the utmost possibilities of the disease. If the process in the meninges stops short of too much thickening, or of contiguous involvement of nerve tissue, it is of trifling moment, perhaps. If vascular changes may be arrested before the point of producing mechanical or nutritional disturbances, the practical significance to the patient may be inconsiderable. A final anatomical feature to be considered, and one already alluded to, is the fact that spirochaetae may deposit themselves at a distance from vessels that would exempt them from the influence of any healing substance conveyed by the circulation, and at the same time at such depths from the surface of the brain and cord as to remain untouched by substances introduced into the fluids bathing these structures.

Thus, the anatomical limitations to successful therapy are manifold. The site of the lesions, their extent, their nature, and their state of advancement may all be unfavorable, and should the process, as an active syphilitic one, be amenable to treatment, the damage already done may be so great that from the clinical standpoint the tissue, though healed, is incapable of resuming normal function. Furthermore, to a large extent, certain portions of the lesions may be inaccessible to medicaments incorporated either in the blood or the cerebrospinal fluid. Thus, the results of all therapy represent compromise between the unattainable and attainable, subject to the place, degree and nature of the lesion and the amount of serviceable tissue surviving the inroads of the disease and remaining capable of resuming its physiological duties. Regarded from another point of view, it would do a paretic little good to have the process arrested after he had lost his memory, or a tabetic after his optic nerves were atrophied. Therefore, we must strictly distinguish between cures of the disease and cures of the patient, the former being the easier to effect, the latter the more desirable. The former is an academic problem, the latter a practical one, and there are few families who would go their way rejoicing because a syphilographer consoled them with the knowledge that though their father's cerebral syphilis was cured as a process, he would nevertheless remain a blithering imbecile for the rest of his days on account of irreparable damage already done.

Before analyzing the limitations of therapy a brief exposition of the various lines of treatment will be necessary. The medicaments employed are mercury, arsenic and the iodides. Only the first two need seri-

ous consideration. Mercury is injected either intramuscularly in soluble or in insoluble salts, or subdurally, in general after the fashion suggested by Byrne. Arsenic is employed in the form of salvarsan or a similar product, intravenously or intraspinally, or both. The administration of other arsenical compounds by injection or by mouth, or of mercury by mouth or inunction have fallen into disfavor (which is possibly only temporary), and may be eliminated from present consideration. Thus, the medical treatment of central nerve syphilis resolves itself into a choice of methods among the intravenous or intraspinal administration of the new arsenical substance, or to intramuscular or intraspinal administration of mercury, or some combination of these four.

Three methods of subdural introduction of salvarsan stand out; that of Ravaut, in this country applied by Udo Wile; that of Swift and Ellis, and that of Ogilvie. The Ravaut method depends upon the introduction of small quantities of neosalvarsan dissolved in the patient's spinal fluid. The method of Swift and Ellis consists of withdrawing a patient's blood within an hour after the intravenous administration of a full dose of salvarsan, and subdurally injecting the serum thus collected after suitable dilution and inactivation. Ogilvie's procedure depends upon dissolving a known quantity of salvarsan in human serum. This solution is then subjected to body temperature for forty minutes and inactivated for half an hour.\* Certain notable differences among these methods require some elaboration. Ravaut's is the simplest, and the spinal fluid is withdrawn only to be replaced. The Swift-Ellis device has three striking characteristics; the intravenous preliminary treatment, the passage of the salvarsan through the body which has been proven experimentally to enhance its trepanosomicidal value, and the removal of abnormal spinal fluid in a bulk equivalent to that of the solution subsequently introduced. The Ogilvie method lacks the first two characteristics of that of Swift and Ellis, but a known quantity of the drug is employed, the bulk of the fluid withdrawn is made up for by that of the fluid introduced, the passage of the salvarsan through the body is simulated by its forty minutes' exposure to body temperature, and the intravenous injection may be employed as an adjuvant. A few words as to the advantages and disadvantages of these various methods may be here inserted. Ravaut's has simplicity to recommend it, but on the whole seems to possess certain dangers such as irritation of the cord, paralysis of the lumbar centers, and in certain instances death has been alleged to have been caused. The main advantage of the Swift-Ellis method lies in the increased destructiveness to spirochaetae of the intraspinally injected serum after the latter's salvarsanization in the body. It has been adversely criticized because of the negligible amount of salvarsan contained in the serum, a fact determined by Benedict and quoted in an article by Sachs, Strauss and Kaliski. In Ogilvie's procedure the quantity of salvarsan introduced is known, and is too small to be harmful. It lacks the preliminary passage through the body, but this want is at least in part compensated for artificially.

The benefits claimed by the sponsors of these methods are their harmlessness, their clinical and their serological efficacy. The objections advanced by antagonists are that no benefits reside in the intraspinal administration of drugs that cannot be found in the

\*For precise details of these methods the original communications referred to should be consulted.



intravenous or intramuscular, and that the amount of salvarsan introduced, if sufficient to be of value, is harmful, and if harmless possesses no therapeutic value. The Swift-Ellis method has been particularly objected to since the amount of serum employed is supposed to contain too little arsenic to be of any use whatever, and the Ogilvie method is said to be incapable of introducing more arsenic than can be found in the cerebrospinal fluid after intensive treatment with massive doses intravenously administered. The improvement alleged in the intensity of the Wassermann and globulin reactions, and the reduction of the pleocytosis, are ascribed to the removal of the abnormal fluid rather than to the drug. In general there seem to have arisen two schools, one which unequivocally attacks intraspinal therapy and another which enthusiastically advocates it. On the whole, the neurologists largely constitute the former, while the latter consists chiefly of syphilographers. Why the question should be approached with so much animus by so many neurologists is puzzling, unless they are reluctant to see a group of central nervous diseases removed from the category of therapeutic hopelessness that appears so peculiarly characteristic of this field of medicine. On the other hand, those who regard intraspinal therapy with favor may, perhaps, be justly accused of being biased by academic rather than practical considerations, for it is of little value to a paretic or tabic to have his cerebrospinal fluid become normal, if the clinical symptoms of his disease are not overcome. The controversy resolves itself into one waged between intolerance and unwarranted optimism, neither of which attitudes is scientific, and both of which lead away from the welfare of mankind.

Whatever else may be said of the methods under consideration, they are at least purposeful and constructive in their tendency, rather than hopeless, as is the destructive criticism of those opposed. If, as has been claimed, and with good reason, the choroid plexus is almost impermeable to salvarsan, the intravenous injection of salvarsan can be, at the most, of limited utility in syphilitic central nerve affections. If, with intensive intravenous treatment, at most no more arsenic is found in the spinal fluid than can be safely incorporated by the Ogilvie procedure, the latter is preferable because simpler, and because it certainly forces the drug into contact with the affected areas. When the harmlessness of the method is attested to by so careful a critic as Fordyce, the simple gesture of an intolerant hand is not sufficient to wave it aside. Should the foci be inaccessible either to medicaments in fluids surrounding the tissue, or flowing in the blood stream, neither method has any advantage over the other. In the last analysis the question of efficacy must depend upon the nature of the process treated, its site, extent, and the nature of the damage already done.

Obviously, in many instances these factors render the outlook hopeless, even though the syphilis may be cured, for more or less permanent injury must have been done or the patient would have no symptoms. If tabes dorsalis can be arrested in its early stage with perhaps only ataxia present, and before the second nerve becomes involved, the patient is better off than if his physician hopelessly waits, or temporizes. It is certain that intraspinally administered salvarsan will reach the affected areas if anything will, and by no means certain that intravenously administered salvarsan always does. It is conceded by opponents of this therapy that no more arsenic gains access to the cord by the intravenous than the intraspinal injection of Ogil-

vie. It appears, too, that serum alone is of benefit, a feature eliminated by the pure intravenous treatment.

Meningeal syphilis and that of the central nerve vessels are, of course, readily amenable to intravenous treatment, and solely because of the fact that the affected tissues are richly supplied with blood. Not so lesions of the surface of the cord and brain! These must theoretically be surrounded by salvasanized fluid and the only way to do this is to introduce the substance directly. Undoubtedly, some cases improve with one method, others with the other, and many, unfortunately, with neither. Should the intravenous method fail, it seems to become a matter of duty to attempt the other, although many believe, and this view does not appear extravagant, that the intraspinal should be tried in any event, since it can do no harm and may do good, when the more conservative method is without avail. Nor should time be lost in defending a theory in the face of imperative conditions.

There are many forms of central nerve syphilis which are incurable, and were the risk of the intraspinal treatment ten times as great as it is and the likelihood of relief one-tenth of what it is, it would be a matter of duty to employ it, for the disease is always serious and often desperate. On the other hand, there is little question that even in favorable cases the method is not ideal, but it is better than anything that has yet been offered by its opponents. No doubt the future holds something in store for us that will offer a better means of attacking the problem, but in the meantime there is no reason for remaining anchored by placid tradition to a resigned and ineffectual past.

The value of intraspinal injections of mercury is not yet apparent. It appears to possess no advantages over salvarsan. Intramuscularly administered, mercury appears to possess limited value in central nerve syphilis as such. We do not know yet whether mercury destroys spirochaetae, or whether it stimulates cells to do so. It appears certain, however, that salvarsan is mainly a spirochaete destroyer. This being the case, it can be effective only when spirochaetae are present, and in destroying these, the inflammatory reaction induced disappears. Thus, a great many symptoms vanish partly because of the removal of the micro-organisms, partly because of the absorption of infiltration; therefore, extensive symptoms sometimes pass off with the healing of a small focus. For this reason, often, alarming manifestations are dramatically removed. On the other hand, however, the same symptoms due to scarring or loss of substance are incurable. There is no way of telling which of the two conditions exists, and thus accurate prognosis is impossible. The site of the lesions with reference to the vessels will determine whether the intravenous treatment or intraspinal will more certainly reach the foci. The latter is more likely to attain to areas inaccessible to the former. The main objection, however, to the intraspinal treatment is the small amount of arsenic it is possible to use, but the amount is not larger with the intravenous administration. The question thus becomes one of devising a means of bringing more arsenic into action without harm to the patient. This is the problem to be worked out.

There can be no doubt in the minds of impartial observers who have had experience with both methods that with all of its manifest defects, the intraspinal treatment offers certain advantages which the intravenous cannot supply, and although much is left to be desired, it is at present the best available single method

of treating central nervous lues. Absolute restoration of tissues to normal, absolute removal of all symptoms of disease, are in a large number of cases impossible, as impossible as removing the scar of a chancre by medical means. Serological improvement is nearly always likely. This is interesting, but of little value to the patient. Nothing will ever restore destroyed tissue, but until a better method is discovered the intraspinal treatment cannot be cast aside, and it certainly offers as much as, if not more than, the intravenous alone. One cannot escape the conviction, however, that the two are mutually supplementary, and to take sides in the matter, to endeavor to establish the thesis that either is vastly the superior of the other, is futile. The middle course is probably the proper one, for central nervous syphilis is part of a systemic disease which requires general therapy for general indications, and special therapy for special. The intraspinal treatment supplies the latter need, albeit inadequately, perhaps, and it seems intolerable to condemn it as useless before an improved substitute has been discovered.

108 West 87th Street.

#### BUREAU OF MINES' STUDIES OF OCCUPATIONAL DISEASES.\*

W. A. LYNOTT, M. D.

U. S. BUREAU OF MINES,  
Washington, D. C.

Early in the history of the Bureau of Mines, the subject of occupational diseases among miners and metallurgical workers came under consideration. The late director, Dr. Joseph A. Holmes, entered into a co-operation, continued by the present director, Van. H. Manning, with the Public Health Service to investigate the prevalence of certain specific diseases among those engaged in the mining industry. Those studies were first undertaken among the miners to discover the prevalence of the hookworm disease and pulmonary troubles, more especially silicosis, and later were broadened to ascertain the extent of poisoning among blast furnace workers by carbon monoxide gas.

The foregoing efforts, and a preliminary research regarding the possibility of miners being affected by nystagmus, as is the case among some coal miners in Europe, were conducted by special investigators, generally assisted by sanitary and mining engineers connected with the Bureau of Mines. While these special studies were being forwarded, general investigations have been made regarding the sanitation and prevalence of general diseases in mining camps and villages, and the effect of temperature, and humidity on the health of miners has been noted by the surgeon connected with the mine rescue and first aid work, and by a sanitary engineer on the Bureau's staff.

Dr. A. J. Lanza, of the Public Health Service, and Edwin Higgins, Mining Engineer of the Bureau of Mines, made an exhaustive study of pulmonary diseases and its relation to rock dust in the mines among the miners in the Joplin, Mo., district in 1915.

It is known that inhalation of sharp particles of siliceous dust injures the mucous membranes of the lungs, bronchial tubes, etc., and in this way the lungs are in a receptive mood to pathologic conditions, especially to the germ of tuberculosis. This has been proven by investigations of morbidity among workmen in dusty trades and by study of the prevalence of lung

diseases in the mines of South Africa and other foreign countries.

The report, as submitted by Dr. Lanza and Mr. Higgins, deals with sanitary conditions, more especially the prevalence of siliceous rock dust in the lead and zinc mines of the Joplin district and the bearing of these conditions on pulmonary diseases of the miners.

#### Records of Fatalities From Tuberculosis in Joplin District.

The records of the State Board of Health for the calendar year 1912 show 180 deaths from pulmonary tuberculosis in Jasper County, Mo., which represents a death rate of 200.8 per 100,000 population.

It seems to be the general opinion in Jasper County that lung diseases became more prevalent after the beginning of active mining in the sheet ground in the early eighties, and that the flint dust from drilling and other mine operations is largely responsible for this condition. The investigators concluded that when working conditions in any locality are such as to expose the workers to a hard, flinty, insoluble rock dust and when among those workers there is a high death rate from pulmonary tuberculosis, that there is a definite connection between the dust and the disease and that the dust is largely responsible for the disease; not entirely responsible for all pulmonary disease, but a prime factor in its causation.

In this Joplin district a physical examination of 93 miners was made by Dr. Lanza; 64 showed plain and definite evidence of pulmonary disease, 3 were suffering from non-pulmonary disease and 26 were seemingly well. Of the 64 sick men, 22 had stopped work on account of their health, the remaining 42 still being at work underground. Moreover, of these 64 men 39 had the classical symptoms of pulmonary tuberculosis. The physical signs of the other 25 were not such as to justify a diagnosis of tuberculosis on one examination—all of these 25 had noticeable dyspnea, cough, etc.; 11 of the 25 showed evidence of lung injury, whereas 14, in spite of marked subjected symptoms, presented no definite sign of tuberculosis on physical examination, their condition resembling rather sclerosis or miner's consumption.

#### Tuberculosis Among Coal Miners.

Tuberculosis among coal miners is uncommon. The writer had occasion to visit a district in 1913 and 1914 where there were about 7,000 miners. While a physical examination was not suggested, the doctors in the various camps unhesitatingly said rarely if ever a case of tuberculosis was found among the miners. All told not over 15 cases were admitted by the doctors. It was true that some members of the miner's family were affected, but the miners themselves seemed to have a certain immunity.

Many mine surgeons were under the impression that the coal or coal dust, in a measure, was responsible for this immunity.

So far as mine injuries are concerned, where open wounds are found and where coal dust, dirt, etc., have entered the wound, if removed under aseptic conditions, infection seldom follows, unless germs were carried to the wound by fellow workers in an attempt to remove foreign particles.

#### Asthmatic Conditions Among Miners.

In the olden days many of the miners had miner's asthma, and it was thought to be due to coal dust inhalation. In recent years, however, asthma among miners is very rare and this improvement is due in a measure to better ventilation in the mines.

\* Paper prepared for the meeting of the American Chemical Society, New York City, September 24, 1916, by permission of the Director of the Bureau of Mines.



### Effect on the Men Coming in Contact with Radium During the Process of Crystallization.

Dr. R. B. Moore, physical chemist for the Bureau of Mines, has made an exhaustive study of uranium, radium and vanadium. In Bureau of Mines Bulletin 104 he reports that there has been no injurious effect of any kind attending this work. Practically all of the young men he examined have taken their turn at the work for two or three months each day and one of them worked for five months in the crystallizing room. No ill effects have resulted in any case, although the air in the room was, of course, quite radio active due to the emanations driven off from the solutions. Rubber gloves have been used to some extent in connection with crystallizing the richer fractions, but such gloves have not always been used. Under these conditions the alpha rays are all shut out and only a very moderate proportion of the beta rays reach the operator.

### Brass Shakes.

Dr. H. W. Gillett, alloy chemist, of the Bureau of Mines, made an exhaustive study of "brass shakes," and I quote freely from his article on this subject found in U. S. Bureau of Mines Bulletin 73. This disease is also known as "brass founder's ague" or "smelter chills." It is somewhat similar to malaria ague. There is no specific remedy. The symptoms are dry throat, feeling of lassitude, a hacking cough, a dull headache, a feeling of oppression in the chest, difficulty of thoracic breathing, and sometimes a feeling of nausea. In a few hours, but usually not until the subject leaves the furnace in the evening so that perspiration ceases, a slightly chilly feeling occurs which increases to a distinct rigor, the subject shaking violently. During the chill the actual temperature may rise to as high as 103° F. The chill is accompanied by muscular pains. After a few hours the chills cease rather suddenly and a profuse perspiration sets in. The attack is then over and the patient sleeps profoundly, rising in the morning with only a slight feeling of weakness. Zinc is eliminated in the urine and feces and its presence is suspected in the perspiration also. Swelling of the spleen and albumin in the urine are also sometimes reported.

The theories as to the exact agent that causes the diseases are varied, the blame being variously laid on zinc oxide, metallic zinc, arsenic, cadmium, copper, a mixture of copper and zinc or carbon monoxide. Of these the most probable cause is zinc oxide, the main constituent of the fumes. It is unlikely that metallic zinc reaches the lungs unoxidized. No definite proof has been adduced to show that the minute traces of arsenic that may be present as an impurity are the cause. Cadmium being far more volatile than zinc practically all the cadmium in the smelter being lost.

Some persons, especially those not indulging in alcoholic liquors, are naturally immune from the shakes; most others, if constantly breathing small amounts of zinc fumes, develop practical immunity and have the shakes only when they get an overdose of fumes as when ventilation is poor or after a day of rest, when the system becomes freer from zinc. Monday night is the time when most cases of "shakes" occur, both because the Saturday night and Sunday indulgence in alcohol puts the system in such condition that the subject is more susceptible.

The shakes are inconvenient and unpleasant but seldom or never fatal, very few cases coming under the hands of a doctor.

The disease involves temporary discomfort and some

doctors claim that it lowers the bodily resistance so that other ailments, particularly pulmonary diseases, are more readily contracted and that the average life of brass smelters and casters is therefore reduced.

**Prevention.**—To prevent "shakes" the zinc fumes must not be allowed to enter the nose or mouth. The use of respirators is seldom employed as the men prefer an occasional attack rather than the continual discomfort of wearing the respirator.

As enough fumes to develop immunity is not present in foundries where yellow brass or manganese bronze is seldom poured and as the small amount produced would not warrant installing forced ventilation the inconvenience from "brass shakes" may be as great and the cases as many as in rolling mills where alloys high in zinc are constantly poured, but where there is proper ventilation and where immunity is developed. Hence in the plants where alloys high in zinc are poured only occasionally the wearing of respirators during such pouring should be made compulsory. As the toxicity of the zinc fume probably exists whether the fume be inhaled or swallowed, eating food or chewing tobacco in the presence of zinc fume or without previous washing of the hands and face should be prohibited. No trouble from "shakes" is reported from any plants dealing only with bronze, red brass or other alloy low in zinc, save for one isolated case where cupronickel, as found by Dr. Gillett, free from zinc, was melted in a battery of furnaces sometimes used for yellow brass, but no alloy containing zinc were being melted at the time the attack was contracted.

The fumes given off during the melting and pouring of brass, lead, tin, antimony, zinc or bismuth are poisonous and should be avoided as much as possible.

Excessive inhalations of the fumes of these materials may be the cause of mild forms of metallic poisoning indicated by temporary illness, such as the feeling of exhaustion, nausea, marked pallor and chills. For treatment give hot non-alcoholic drinks and induce perspiration. Proper ventilation, maintenance of proper temperature, etc., should be adopted in all cases.

### The Effect of Temperature on the Health of Miners.

In Northern Minnesota a number of readings were taken which represented 25% of the total places. In one place dry bulb registered 72° F., wet bulb 69° F., with a relative humidity of 86%. In an isolated stub end the average for mine on air course was 48° F. dry bulb, and 46° F. wet bulb. Another reading showed wet bulb 46° F., and dry bulb 45° F., with a relative humidity of 87%.

In a stub end ventilated by mechanical fan, dry bulb registered 73° F., wet bulb 69° F., giving an average humidity of 82%, which is a desirable working mine.

In some of the iron mines of Minnesota warm places were observed especially in isolated places, but this was due primarily to falling timber and decayed timber. The above figures in a measure represent nearly all the iron mines in Northern Minnesota.

European coal mines are deep and therefore hot, American coal mines are shallow and it is very rarely that the temperature rises much over 70.

In a certain section of Minnesota statistics were compiled to show the natural causes of death among miners. In this particular section there are 2840 miners employed. From January 1, 1914, to November 16, 1916, 33 men died as a result of illness—divided as follows: 3 died from typhoid fever; 2 from kidney trouble; 2 from cancer; 4 from acute alcoholism; 4 from heart trouble; 1 from blood poisoning; 7 from



pneumonia; 1 from gangrene; 1 from intestinal obstruction; 1 from duodenal ulcer; 1 from exposure to cold; 1 from tetanus; 1 from brain abscess; 3 from consumption, and 1 from hemorrhage of brain.

It will be seen that pneumonia was responsible for the most deaths among the Minnesota miners, seven men out of 2480 having succumbed to this disease. This may or may not be alarming and could not be considered a criterion as the prevalent diseases which readily respond to treatment have not been recorded. However, it may show that miners were subjected to this disease by reason of their walks from upcast shafts and while perspiring walk to dry houses which are in some places a considerable distance from the mine exits.

#### Miners' Nystagmus.

Dr. Frederick T. Hoffman made an exhaustive study of miners' nystagmus for the Bureau of Mines and his report may be found in U. S. Bureau of Mines Bulletin 93.

In his report he claims that miners' nystagmus is the result of a peculiar form of eye strain which often results in the impairment of vision and consequent diminution of the wage earning capacity of the workman. According to Greer, an authority on industrial diseases and accidents, miners' nystagmus occurs in 5 per cent of all miners, but it is quite probable that the reference is to European coal mines rather than to men employed in all branches of the mineral industry.

According to the same authority miners' nystagmus is associated with a twitching of the eyelids and with considerable diminution of the range of movement of the eyes, and is particularly liable to occur in patients whose vision is subnormal owing to errors of refraction especially stigmatism. It causes much weariness to those suffering from it and prevents them from following their usual occupation, as owing to the movements of the eyes, everything at which they look appears to be in a state of perpetual motion and in consequence their visual acuity is more or less reduced. When the movements cease the vision becomes as good as it was previously. Nystagmus as an occupational symptom is not alone confined to miners and may develop in those who are compelled to give close visual attention to constantly moving objects.

Nystagmus is found chiefly in miners who work at the coal face in a more or less constrained position of the body and the eyes. A man lies almost on his side with his legs crooked up and strikes the coal with a horizontal swing of his pick at the bottom of the coal seam. A miner engaged at this work will direct his gaze to different places as it becomes necessary for him to strike, for the eyes will follow the pick point but the tendency will be for the gaze to be directed upward (using the ocular elevation) more or less obliquely. He will be sometimes on one side and sometimes on the other. His head will be thrown back and flexed more or less on the shoulder beneath.

Snell says that nystagmus occurs among miners working with all kinds of lighting, and that he has met with it among those working with safety lamps, candles, large open lamps as well as when artificial light was really good. He says, however, that there are reasons for believing that the strain is greater in poor light and that nystagmus is met with in greater frequency under such conditions.

**Symptoms.**—Oscillation of the eyeball, objects dancing before the eyes, headache, giddiness, both eyes affected, tremors of the head, eyelids and of the muscles of the face or neck are often associated.

**Prognosis.**—Prognosis is usually good even for old standing cases if the directions as to change of the work are followed.

In some cases according to Snell, it will suffice if the patient ceases from coal getting without altogether stopping work in the mine, but generally it is advisable, especially if the nystagmus be of a high degree and of some standing, to recommend cessation altogether from work underground. After relief has been effected, return to the mine is practicable, provided the head can be kept straight and the upward turn of the eyes avoided. Resumption of the old kind of work is followed sooner or later by a recurrence of the symptoms. Medical treatment is of service.

#### Hook Worm.

As regards the prevalence of hook worm in this country preliminary investigations have shown comparatively little in northern coal mines, although it is undoubtedly prevalent in southern coal mines.

J. H. White of the Bureau of Mines has recently completed an exhaustive study of the hook worm in deep California mines and he found that the spread of the disease is due to the warmth of the mines and to climbing up and down ladderways, it being very easy for the infected mud to get on the hands of the miners.

#### Health Conservation at Steel Mills.

Dr. J. A. Watkins, passed assistant Surgeon U. S. Public Health Service, recently completed technical paper No. 102, a Bureau of Mines publication on "Health Conservation at Steel Mills." The edition is not quite ready for distribution but through the kindness of the Director of the Bureau I am permitted to make reference to it.

The number and seriousness of occupational health hazards have increased rapidly with the evolution of new machinery, the use of new materials and process of manufacture and the resulting new products. The attempted or forced adoption of the human body to this changed environment has resulted in many abnormal conditions. The importance of the prevention if disease among workers can be realized from the fact that the average loss of time due to illness among approximately 30,000,000 workers in the United States is 9 days a year. This is 270,000,000 working days or about 750,000 working days annually. If medical attention be estimated at one dollar a day and earnings at two dollars a day this loss amounts to \$880,000,000 annually.

Dr. Watkins urges medical supervision of employees and he makes the following suggestions:

The working man has a right to demand that he be not required to work beside men who are diseased or mentally deranged.

A plant hospital should be provided to give emergency relief to those injured or taken ill while at work. Fatigue lowers the vitality of the individual and thereby increases his susceptibility to the hazards of his occupation and to disease in general. There should be sufficient space for each employee in order that close proximity to dangerous machinery or undue exposure to heat, dust, fumes or gases or harmful material or products may be minimized.

Floorings affect health mainly through the liability of floors made of certain materials to retain germs of infectious diseases. Hard elastic substance such as cement or steel make unsatisfactory floors for employees who have to be on their feet constantly.

He suggests that floor space should be kept clean and the floor should be constructed as to permit easy

and thorough cleansing. The workshop and factory should have proper lighting. It gives increased efficiency. The ill effects of bad lighting gives impaired vision and often is responsible for accidents. Noises cause lowered efficiency by having a deteriorating effect on the more sensitive functioning parts of the ear. Improper ventilation is responsible for general impairment of health.

The combination of high temperature and high humidity of the shops eventually affect the health of those exposed. The economic effect is a decrease in the efficiency of the worker that is a lowering in the character and amount of work performed. Continued exposure to high temperatures and high humidity increase the susceptibility to disease and may cause muscular and joint pains, aches, cramps and in extreme cases, heat exhaustion and continued exposure will eventually cause anemia and skin eruptions and tends to induce premature old age.

The number of hours which a man actually works has a direct bearing on fatigue. After a certain amount of exertion for a given time, the efficiency of the employee fails.

Sanitary washing and dressing rooms are an aspect of this problem that should not be overlooked.

Water closets should receive proper consideration. Correct ventilation of these places consists not so much in the supplying of fresh air as in the rapid removal of disagreeable odors as they arise.

Drinking water should be pure and should be adequately supplied. The water should be so distributed to preclude all possibility of contamination. The water should be of proper temperature.

### THE MEANING AND USES OF PAIN.

LAWRENCE IRWELL, M.A., B.C.L.

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As pain is a constant accompaniment of the evolution and dissolution of things throughout animate nature, the same rule of life-devouring life thrilled with the same note of agony being in force from the bottom to the top of the scale, it would be a strange thing if man who inflicts most pain and devours most life were exempt from it.

So far from being exempt he pays for his superiority of organization by a greater capacity to suffer pain. He is not only sensible to moral pains and imaginative apprehensions which other creatures do not feel, yet which cause worse suffering than they can ever feel, but he is also liable to experience keener, more special and various bodily pains by reason of his more special and complex nervous organization. If man is not higher in organization because he is capable of more pains, he certainly suffers more pains because he is higher in organization. To say, as Shakespeare does, that the poor beetle which we tread upon suffers a pang as great as when a giant dies, is untrue and unphysiological; the beetle does not feel so keenly such pain as it feels, and it cannot feel the variety of pains which man feels. Specialization and complexity of nervous structure involving many intimate sympathies of parts implies a corresponding intensification and specialization of pains, the compensations of which are more varied and keener pleasures. As self-consciousness begins with complexity of nervous organization, so increasing specializations of consciousness accompany its special and complex increases.

Although pain is a condition of coming into the world, of living in it, and of leaving it, yet we never

cease to wonder at the mystery involved in it; we live a pain-stricken existence, yet we are perplexed and perpetually troubled in mind by the anomaly of pain. If in place of the great assumption that the universe was created for us, we modestly acknowledge that every man is merely a transient step in an endless course of events, we might perceive that it is a small matter whether we are sad or glad so long as we continue to live and perform our ordained function for our brief existence. The one thing which does matter is that the pain be not too great to prevent each man doing his work, yet sharp enough to make him do that work. Although from a self-conscious point of view it is most unpleasant to suffer pain that the will of destiny may be accomplished, yet a stoical temper may gradually teach itself to look upon the vast unintelligible process of things from the standpoint of negation of self, and so be subdued to resignation.

When all has been said, however, man has very little right to complain of pain when he recalls and reflects upon the incalculable amount, the ingenious varieties, and the excruciating qualities of pain which his inhumanity to his fellows and to other living creatures has wilfully devised and inflicted. As man is the chief sinner in imposing pain upon others, he has little right to protest against such pain as is inflicted upon him.

Recognizing pain as a constant agent in the natural order of things, one naturally asks what are its special uses in human life. Being an organic effect, whatever else it may be, appears to testify, like all organic effects, to survival by natural fitness to survive. Pain has survived because it had the right and might to persist. A principal use is to help to keep the body alive in its struggle for life, for pain indicates danger and produces efforts to escape from it. If there were no pain when a toe is inflamed, its owner might continue to walk on it until inflammation became suppuration and suppuration was followed by gangrene. If the touch of a red-hot body did not cause instant pain, any one might be fatally burned before he was aware of his danger. If hunger produced no pain, one might not care to eat. If it were not painful to look directly at the sun at noon, blindness would afflict those who examined it with the naked eye at that time. Serving as it does the self-conservation of the organism, pain is a most useful danger-signal—the outcry of injured and life-threatened organic element which has no language apart from that cry. That may be the reason why pain has a short and bad memory; it indicates disorganization, imminent or actual, while conscious memory implies functioning organization—definitely organized associations whose dissociations are dismembraments and therefore not rememberable.

No one has ever recalled a pain as he actually felt it; he can, of course, recollect that he suffered it, that it was excruciating at the time, and all the circumstances of his suffering, but to remember it as it was in feeling would be to revive it so vividly as to re-feel it—to have it again. Being disorganized, there is nothing with which it is connected with organized associations, and therefore when it has passed, its pang is lost to memory. In this respect pain resembles other simple sensations of the special senses, which are not actually remembered as such unless they are so vividly revived as to be virtually re-felt; but in the case of pain there is temporary dissolution of function, whereas in the case of sensations there is a natural lack of associations on their low nervous plane, their associations being organized on the higher nervous plane of ideas. It is



not an unreasonable surmise, then, that the lowest organisms do not remember that they have suffered pain, but that they feel and instantly forget it, living from sensation to sensation without sense of connection or succession. Their condition probably resembles to some extent that of a person who during a surgical operation under anesthesia shouts, groans and struggles—and shows all signs of suffering terribly, but is quite unaware when he comes out of the anesthetic that he made any noise or felt any pain. In such cases one of two conclusions may be arrived at. Either that the anesthetic has paralyzed the higher portions of the brain, but has not acted sufficiently to suspend sensibility entirely, the brain of the higher creature being temporarily brought functionally to the brain-level of creatures which have no cerebral hemispheres, so that he suffers but does not remember; or that the anesthetic has paralyzed sensibility without abolishing consciousness, so that he watches the operation upon his body and resists it, as in a dream, without feeling it. In the latter case, however, one would expect the patient sometimes to remember the events when he regains consciousness.

If the function of pain is self-conservation by giving warning of menace to life, why does it not cease its function when, the danger being natural and inevitable, and self-conservation no longer possible, the warning is futile? Death takes many forms, and almost all of them are painful. Even old age proceeding calmly to its end is usually accompanied by aches and pains. To the supposition that matters might have been so benevolently ordained that when the inevitable end began the unavailing pain always ended, the obvious answer is that by that method the function of pain would have been annulled. It signals danger and destruction, and what greater danger and destruction to an organism can there be than its decay and death? That the organism no longer does anything to preserve its existence when warned is not the monitor's affair; its work is done when it has given the warning, which is a warning to prepare to go out of existence. The warning becomes in most instances less urgent, duller, more faint as gradually increasing decay feels neither desire nor power to attend to its call.

A distinction must be drawn between pain and the physical condition of which pain is a conscious sign. Although the condition of the affected part is local, and the pain is felt in the affected part, yet it is felt by the organism. It is felt in the part because that part is vitally one with the whole, but it is to the organic whole that the local alarm and appeal are sent—to the unity to which the hurt unit belongs. The hurt nervous fiber, although not necessarily known with certainty, conveys the message to the cerebral center where it is received and noted. Just as in every well-constituted society or nation suitable provision is made to protect and help the member who is in peril or suffers injury, so in the physiological organism the hurt unit must be helped to take its place in the ordered conditions of life, or must be quietly extruded from those conditions when it cannot be so helped. Pain is undoubtedly a function of the organism, not of any part of it. It consists of a subtle, sharp message from the disordered part to the brain as the chief central station of intercommunication.

When a shooting nerve-thrill manifests itself on the mental side as a pang of pain, the particular pain is not something thrust into consciousness, for it is the consciousness. The pain and the consciousness are one and indivisible, co-existent, and conterminous. Just as consciousness at its high removes of thought denotes more than a simple element, in fact, a complexity of

things, so pain is not single in essence but composite. It is the result of a physiological sympathy of parts, a complex organic effort and varies in quality according to its constituent factors. An organ detached from its special organism could not feel pain even if it continued to live, as we are told it might do for a very brief period. One suffers no pain when one's hair or nails are cut, because, although both hair and nails are attached to the body, they have no nervous communication with it; and similarly, if the supreme mental confederation in which every part of the body is represented was torn into separate pieces, a completely dissociated part of it would not be conscious at all.

As pain signals impending and accompanies actual processes hostile to life, pleasure indicates unity, pain disunity. The instinct of an organism, its natural strain and aim, is to continue in unity, for unity is life; it is its pain to suffer disunion, that is to disintegrate and die. Therefore to shun pain is the fundamental motive of self-preservation. Creatures so low in the scale of life as not to feel pain, by natural repulsion shrink from and avoid the injuries to their structures which would be attended with pain in higher forms of life, and by natural affinity turn to the impressions suited to stimulate their growth and maintain their existence. Pain can correctly be described as an effect just as natural and necessary in the order of events as the undoing of that which has been originally done, or the great organic undoing which is death. Where would be the mystery of pain if it were not for man's stubborn belief that he was created not to suffer but to enjoy, and that there must be an exceptional reason special to him among animals why he, in company with other animals, must undergo the pains of living and dying? In this manner it happens that man's colossal egoism prevents him from taking his own death as a normal function unless he regards it, not as the end of life, but as a transition to a higher life.

When an organism so low in life's scale as to be, so far as is known, insensible to pain shuns that which hurts it, does it turn actively and as it were spontaneously from that which is a hindrance to its life and growth, or, being hindered, does it turn mechanically elsewhere to an impression which, being agreeable, it can assimilate and embody in structure? The shoot which grows straight toward the light, or turns obliquely if it can get more freedom and light by that process, does it grow in this manner on account of an active quasi-spontaneous impulse to strive for the needed light, or does it so tend because being repelled by that which hinders, it cannot help turning to that which favors its growth? The correct answer appears to be that it reacts to the stimulus which excites physiochemical processes in it, and not to that which does not.

Is it the seeking of pleasure or the avoidance of pain which is the true organic motive and, therefore, ultimately the conscious aim of life? When we reach down to the fundamentals of motive, it is very difficult to distinguish between the avoidance of what is painful and the endeavor for what is easing or pleasing, for the one seems to involve the other. It is quite as difficult to distinguish between pleasure and pain where they meet and merge, for there are pains which in their beginning and ending are almost pleasant, and there are pleasures which in some circumstances are almost pains. All organic life in its normal state evinces an affinity, elective or not, for the stimulus which is profitable for self-preservation and growth, pursuing and embracing it, although it may not differ materially



from the affinity which one chemical element shows for another. This is true, not only as a general motive of human conduct, but true also in a degree of the inclinations or properties of every individual mind. For when any one injures himself by pursuing that which is not his true good—as it is his privilege and habit as the most rational being consciously to do—he does so not because he thinks evil is good, but as the result of the temporary domination of some passion or mood in the mental confederation which strives naturally to maintain and increase its being by selecting and feeding on that which, suited to nourish it, is good to it, although such egoism is to the detriment of the whole which it has captured and leads to triumph. Then comes in the use of pain, whether of body or mind, which signalling danger to the whole, is a warning and at the same time a motive to check and rule the culpably egoistic and therefore unruly action of the part. It is an appeal to the unity of the whole to regain its ease by stopping the disruption threatened by an overgrown egoism and self-seeking action of the part which, as a consequence of unease or pain, may otherwise develop into disease.

Running parallel courses on different planes of organic being, the physiological and social organisms have much the same problem to solve—namely, the just reconciliation of individuality with solidarity in the increasing specialization which accompanies increasing complexity—of the organ with the organism and of the individual with society. An organ in an organism, whether organ of body or faculty of mind, is not free any more than an individual in a society or a society of individuals in a state. It performs its perfect function only with fullest freedom, therefore, when it does so within the physiological limitations imposed by its nature and situation, and these it can never ignore. Within those circumscribed bounds it is free to fulfil its individuality to the utmost, to make the best of itself, but it is not free to transcend them and so do the best for itself.

As the avoidance of pain is a motive urging man to higher function and structure, the theological designer has not failed to see and seize his opportunity. He proclaims pain to have its benevolently preordained purpose in the economy of nature as a spur to development, by prompting the avoidance of those things which cause it and the pursuit of those things which mitigate or abolish it, ignoring one of nature's paradoxes that the higher the individual rises in the organic scale, the more sensitive he becomes to it. To shun sensualities which produce pain, remote if not immediate, to cultivate such loving-kindness and courtesy as conduce to social amity and unity, to ascertain the physical conditions which best promote health and comfort, to strive for such increase of knowledge as will more and more subdue nature to human uses and reduce human pains, to cultivate in affliction a patient spirit of endurance and fortitude, by which the whole moral character is raised and strengthened—could pain serve all these excellent uses were it not specially designed by overruling Providence as a means toward them? Mankind owes a psalm of thanksgiving to pain for the useful spur which it has been in the process of humanization of nature. Only mankind, it is true, for the lower animals receive no compensation for the pains which they suffer—pains which cannot serve to raise them in the organic scale, for the way upward is completely blocked by the dominant ascendancy of man who has monopolized it, and believes that animal pains serve their purpose when they serve his purpose.

As the work of human development is done mainly in pain, man being born while his mother suffers pain, learning wisdom through pain, and ending his days in pain, pain, not pleasure, would appear to have been the chief motive power of human conduct. How could any man know and desire pleasure until he had once enjoyed it? Work, which we call a duty and find a pleasure, because, occupying our minds and bodies, it distracts us from reflecting on the monotony, weariness and misery of life, flatters most of us with the feeling that we co-operate and count as a factor in the world's progress. Some men, indeed, are forced to invent and pursue a variety of diversions to prevent or alleviate the pains of inactivity and life-weariness. If the avoidance of pain is not the prime motive of conduct, pain is the thing which most men shun and often get, while pleasure is the ideal which they seek, often do not get, and which frequently disappoints them when obtained. Strange it is to realize what a course of perpetual illusionment and disillusionment man follows as he proceeds from pain to pleasure, and out of pleasure generates pain. For the very pleasure gained becomes in secondary development a motive to avoid pain, seeing that, once enjoyed, it is a want or pain to be without it, and the want then operates as a motive to further endeavor. Desire strains to enjoy, and enjoyment causing satiety, almost pants for desire—yet it is in the multiplication of desires and of the means to gratify them that the progress of civilization consists: to multiply pains which are real in order to multiply pleasures which, soon fading, are more ideal than real, and by such alternations to achieve progress.

Notwithstanding the good uses of pain, man is strenuous in his endeavor to get rid of as much pain as possible. In his conflict with nature he therefore uses diligently the powers which he gains over it by successive discoveries of its secrets for his own ease and well-being in the world. What sense is there in suffering pain which he can escape, or of making for himself gratuitous pains? Nevertheless, some persons condemned and would gladly have prevented the use of chloroform, or ether, in obstetrical cases when those drugs were first used, on the ground that the abolition of the pains of childbirth was an impious defiance of the divine sentence passed upon woman for the primal sin of Eden. Perhaps, however, these people were not quite as foolish as, at first sight, they appear to have been, for if nature has made pain a necessary condition of organic development on earth, the abolition of pain by man may not be a sign of human progress.

Considering what pain has done as a spur to wise action in the process of human adjustment to surrounding men and things, how it has helped to ingraft courage, patience, self-sacrifice, devotion, sympathy and charity upon human nature, its seeming cruelty being, in reality, masked kindness, it is impossible to assert that its abolition would be a benefit, and that men could be strong and thrive without it. Sorrows and sufferings have been the nurseries of virtue—affliction's good teachers—minds have been chastened, disciplined, purified, and more or less perfected by trials and pains. Nevertheless, signs are not lacking that as man attains to a more complex social organization in the course of his civilization he is getting out of harmony with the fundamental natural law, and so, as a result of growing too tender and losing the fierce energy of organic evolution, retrogression seems to have begun to take the place of progress.

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## A DIPHTHERIA EPIDEMIC IN AN INDUSTRIAL SCHOOL.

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A serious epidemic of diphtheria which occurred at the Berkshire Industrial Farm in Canaan, New York, is reported here. The institution is carried on privately for the teaching of bad boys. It takes no mental delinquents or boys physically unsound in any marked degree. The age limit for admission is between 8 and 16, with very few boys under 10. Many of the lads are sent from the juvenile courts of the larger cities.

At the time of the outbreak of the epidemic there were 96 boys housed in four large dormitories and one smaller hall which kept the boys not having reached the age of puberty. This building has a separate dining-room. The other boys grouped as to age and size in the other dormitories ate in one building, but in different group dining-rooms. The smaller boys had a separate wash-room and did not mingle much with the older boys, except out of doors and at the meetings in the chapel and church or at the athletic contests held in the gymnasium. All milk, butter and much of the food is raised on the farm. The school comes under the State rules for institutions, requiring a thorough physical examination on admittance, with two weeks in quarantine before the new arrivals are permitted to mingle with the other boys in any way.

I have been visiting physician nearly five years and until the past year we had had no epidemics. During 1915 we had a few sporadic cases of German measles, measles, typhoid fever, and acute follicular tonsillitis. November 30, 1915, a case reported to the hospital with a very sore throat, with a temperature  $101^{\circ}$ ; in the evening two others were sent in with sore throats, but low temperature. On December 1 I found one lad showing slight follicular patches of a grayish hue unlike those of the cases occurring before. His temperature, despite calomel and salts, was  $102^{\circ}$ , and on that day and the next 8 new cases were admitted. One showed  $103^{\circ}$ , the others being between  $99^{\circ}$  and  $101^{\circ}$ . These cases were put in strict quarantine. Without waiting for a report on the cultures, I gave 3,000 units of antitoxin, and notified the health officer.

As the cultures were positive.

With the assistance of Dr. Southworth, 118 persons were given 1,500 units of antitoxin each; cultures were taken of all the 26 boys under treatment at that time and 18 showed positive. Very few of the boys showed any very alarming symptoms, although those under treatment received only 1,500 units of antitoxin, with the exceptions noted.

As we had so many cases, one of the larger dormitories was cleared for the reception of the boys showing the mildest symptoms. Those with severe symptoms were placed in the infirmary under a special nurse and the other building was placed in charge of the school nurse, a separate room provided for those who should prove negative to culture to await the second culture test. We had 26 positive cases under treatment from December 12 to January 2. No new cases developed until January 12, when we found one.

With Dr. Southworth, cultures were taken from the throats of all the boys and members of the staff who had not previously been cultured. Two were returned positive, one a boy and the other the head school master; neither of these had any symptoms subjective or objective, but it was necessary to keep each of them quarantined for several weeks. Three cases came in Jan-

uary 20. On February 20 two more cases, and February 24 the last case was admitted.

We have been unable to discover where the disease developed, as the cases came from all dormitories and all ages were about equally represented from the very first. The last flare up in February was indicative of nothing as the four cases came from four dormitories and no two of the boys even ate in the same dining-room.

In studying some of the cases in detail, that of G. has some features worthy of note; first, a case starting with an increasing temperature for two days, dropping one degree on the third and fourth days before the administration of the antitoxin, but with the decrease in temperature showing no amelioration of the throat condition. After the antitoxin the temperature broke quite promptly to  $99.6^{\circ}$ , but began to rise slowly the day after, reaching  $101^{\circ}$  in the evening. It was  $102^{\circ}$  on the second morning after the injection and had reached  $102.6^{\circ}$  in the afternoon of that day. The patient was delirious and breathing with some difficulty, though not enough to warrant intubation. He was given 3,000 units as a second dose, which resulted in a prompt drop in the fever. The following afternoon it rose, but the extensive patch and swelling began to subside, the boy breathed easier, but the delirium increased. The temperature ran a very irregular course for several days, reaching  $103.5^{\circ}$  as its highest point during the course of the disease. I think the rise was due to the absorption from the slough rather than from the diphtheria toxin, for he later raised large masses of membrane which had an unusually bad odor. After this temperature became subnormal,  $97^{\circ}$ . He convalesced rapidly.

One of the striking points in this case was the pulse-temperature ratio. A lad of ten, with a temperature of over  $103^{\circ}$  on the seventh day of serious illness, but with a pulse rate of but 108, which was the highest recorded rate during his illness; the next day when the thermometer registered  $102.2^{\circ}$ , the pulse rate was 96, from which it dropped as low as 62, the average during convalescence being between 66 and 80, his normal rate being 72. This case was the most serious case had during the epidemic. He had a partial vocal paralysis which lasted for three months, but has cleared completely and at present the boy is one of the healthiest at the Farms.

In the case of L. there was scarcely any rise in temperature except the evening before the injection of the 1,500 units of antitoxin, when he registered  $103^{\circ}$ , with a pulse of 100. The morning after the injection his temperature was  $96.4^{\circ}$ , pulse  $70^{\circ}$ , going to  $99.2^{\circ}$  in the afternoon, with a pulse rate of 72. He never showed a patch larger than a split pea. That appeared the day after the injection and remained three days. From December 7 to December 27, when he was discharged, the temperature range was between  $96^{\circ}$  and  $98.4^{\circ}$ , the pulse ran between 54 and 72 and when discharged he seemed in his usual health and his pulse had become fairly steady, between 68 and 72.

Bk. and Pg. were admitted together on the evening of December 1, with temperature of  $101^{\circ}$ ; on the second it had gone up in Pg. to  $103^{\circ}$ , and with Bk. to  $102^{\circ}$ . Both showed large patches on the third day of the disease and had difficulty in swallowing. Each had a temperature of  $101.6^{\circ}$ , with pulse rates of 100 and 98, and they were given 3,000 units, with very good results, though the temperature drop was not as marked as in the case of G. Both cases were very similar,



the temperature being 100° in both in the morning after the injection. Pg. went to 100.4° in the afternoon, and they were given 3,000 units, with very good results. Bk. claimed he had diphtheria several years before admission to the Farms. On the 5th it ran about the same in both, 98.6° in the morning and 99° in the evening. Bk. dropped to 96° on the 7th and his pulse went to 60°, ranging for the next ten days between 97° and 98.6° and the pulse averaging 74°. Pg. was somewhat differently. After the first two days he ran a slight afternoon temperature until the 9th, the daily range being between 98.2° and 99.2°, his pulse rate being between 70° and 80°. He had some difficulty in breathing until the 8th, especially at night. Although he had had an operation for the removal of his tonsils and adenoids not very long before admission to the Farms, he was still a mouth breather. On the 10th Pg.'s temperature dropped to 97° and 98.3°; from the 10th to the 27th the range was between 96.2° and 98.3°, while his pulse ran in inverted ratio to the temperature curve between 110° and 80°; temperature, 96.4°; pulse, 104°; temperature, 98.2°; pulse, 90°.

Bk. was the only boy who received the 3,000 unit dose who had an urticaria from the antitoxin. Pg. and Bk. were in quarantine a longer period, with one exception, than any of the severe cases—five and one-half weeks. Bgs., the fourth severe case to be admitted, reacted much as Pg. did to the antitoxin, as he ran a slight temperature until December 11, ranging from 96.6° and 101.2°. The pulse rate after the injection of antitoxin ranged from 80° to 60°. Bg. was one of the first positive cases to be reported back negative. His second culture was also negative, and he was released from quarantine on December 22, having been in barely three weeks.

Of the other 21 cases but two were severe enough to be moved to the hospital. Both boys had had an immunizing dose before they developed any symptoms. Bm. was the first to come in, on December 7. He had a temperature of 99° on admission, with a pulse of 80°, and showed a small patch on one tonsil. The next day his temperature had risen to 103.4°, and the patch had spread very rapidly. He was given 3,000 units and transferred to the infirmary. His temperature rose in the afternoon after the injection to 103.2°, broke the next morning to 100°, where it remained for a day. The next morning it was 96.6° and 99.2° in the afternoon. The next morning 96°, after which it ranged from 96.4° to 99°. The pulse rate after the injection of antitoxin reached 108, dropped the next day to 80, and after the second day ranged between 60 and 80. Bm. was released on January 3.

Sf. was taken under treatment on December 12, suffering from a very severe urticaria from the antitoxin. Although he complained of sore throat, no patches were visible and he had normal pulse and temperature. His culture taken was negative, but the report did not reach us until the lad began showing symptoms of diphtheria. On the 15th he had a temperature of 99° and in the evening on the 16th 101-101.4°, with a red, angry-looking throat and slight patches. On the morning of the 17th the temperature was 100°, but the patches were very marked and the throat much swollen. He was given 3,000 units of antitoxin, despite the severe urticaria. The next noon his fever registered the highest mark—101.2°, and then dropped, acting like most of the other cases. Sf. was released from quarantine on January 1, 17 days from the date of the earliest symptom of the disease.

Of the 19 positive cases treated in the dormitory there is little to note except the general lack of any symptoms of a serious illness. One lad ran up to nearly 104°, but had no patch in his throat and at no time showed clinical symptoms that would permit of a diagnosis of diphtheria, although his cultures were positive from the first. The high temperature persisted for three days and fell by crisis and the boy felt well after that, though he was in quarantine more than a month. It seemed that those of the boys who showed the slightest symptoms were the longest to remain positive to culture, as seven of these were in quarantine nearly eight weeks and one lad was in from December 7 until May 30.

During the later part of January two mild cases, Sv. and Ov., came in. Two were given 3,000 units, but the other had so few symptoms that it did not seem necessary, but on May 1 all of them showed still positive. On May 12 Dr. Bartlet, of Pittsfield, Mass., removed the tonsils from both Sv. and Ov. The tonsils of both lads were enlarged with deep clefts, showing a slight chronic inflammation. Both boys had some adenoid growth. Ten days after operation Sv. had a positive culture and Ov. a negative. The cultures taken on the twelfth day were reversed, Sv. negative and Ov. positive. Both cultures taken on the fifteenth day after the operation were negative and Ev. was released. Ov. showed a second negative two days later and he was released. This ended the epidemic.

For treatment the greatest number received very little aside from the antitoxin. We used a mild laxative occasionally on all the boys, consisting of cascara and the old rhubarb and soda mixture. All were given calomel, gr. 1, with a light dose of salts when they were first admitted. Seiler's solution was used as a stock mouth wash and gargle and this solution was used to cleanse the nostrils. Hexamethylenamin was given, gr. 5 in one-half glass of water every 3 or 4 hours, to most of the cases during the period of the fever. Special symptoms were treated as they arose. As a follow-up, all patients were given the Bland alternative tablet one-half strength t. i. d., with the rhubarb and soda with cascara after meals as needed. During the epidemic nearly all the various local measures known to have ever given good results were tried. We gave the Kaolin treatment a thorough trial, but its results were more or less uncertain. We were unable to carry out rest in bed, as the boys persisted in getting up when convalescent unless carefully watched.

Following the inoculation at the outset of the epidemic, we had 50 cases of urticaria among the boys, with 10 among the staff, or a little over 50 per cent. of those injected.

The State Research Laboratory kept us well supplied with culture material and antitoxin, aside from which the State Department of Health gave no practical assistance. Drs. Park and Zingher, of New York, gave us some very valuable help, also furnishing material for the Schick test which, owing to circumstances, we were not able to use to any great extent.

The points that are emphasized in my mind are:

First.—The onset of the disease which is unlike most other cases of laryngeal trouble, in that the temperature curve is gradually ascending with a pulse slower than we expect to find in children with fever and other symptoms as severe as they are in most well marked cases.

Second.—The intense soreness complained of with no great rise in temperature or other signs and a very



red throat with a temperature of 99° and a pulse of 80° is, I think, much more likely to give a positive culture than a moderately sore throat with a temperature of 104°, with the pulse in its usual ratio.

Third.—Antitoxin is not a sure preventative, though it doubtless renders the attack much milder and the small doses of antitoxin is, if given early, fully as effective as the larger dose.

Fourth.—If there has been much membrane formed there will be a febrile reaction when that begins to slough, which I do not think due to the toxin of diphtheria and does not necessitate the giving of a second dose of antitoxin.

Fifth.—The temperature in convalescence from diphtheria is most uniformly subnormal, even if the attack be a very mild one, and the pulse rate is also subnormal, except in exceptional cases.

There is no local treatment or application which will hasten the removal of the Klebs-Löffler bacillus from the throats of some that have the disease.

## Five Minute Clinical Talks

### STROPHANTHUS AND STROPHANTHIN.

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The general estimation of strophanthus as a heart stimulant has risen very greatly during the last few years, largely as a result of enthusiastic reports of the intravenous use of strophanthin. Boos speaks of strophanthin as follows:

"Strophanthin, because of its quick action and slight cumulation, makes exact dosage possible. Strophanthin, moreover, is the one active principle of the digitalis group which approximates most clearly in its action to the effect produced by the combined digitalis bodies as they occur in extracts of the leaves."

The strophanthin of the official pharmacopeia is a mixture of glucosides derived from the ripe seeds of *Strophanthus Kombé*, and its average dose is stated to be 1/200 grain. There are also in extensive use a number of commercial preparations of the drug, which vary in their dosage. This fact should be borne in mind in prescribing; and in any case which is not of an emergency character, requiring urgently the maximum dose, it is the part of caution to feel one's way with small beginning doses, if the preparation is not of a familiar make. The dosage of Merck's strophanthin is stated to be from 1/320 grain to 1/60 grain; of that of Burroughs Wellcome, 1/500 grain to 1/100 grain; and of that of Thomas-Merck (which is derived from *Strophanthus Gratus*, and said to be identical with ouabain), 1/20 to 2/5 grain.

The administration of strophanthin by the intravenous method, in large doses and at comparatively infrequent intervals, has been especially commended. For this method most rapid and efficient action and freedom from local pain and disturbance are claimed. The hypodermatic administration is said by Boos to "cause most intense pain and local disturbance."

Acknowledging that the intravenous method is the ideal one for producing the most rapid and powerful effect of the drug, I cannot agree with Boos that the hypodermatic injection is especially painful; at least my patients who have received hypodermatic injections of strophanthin have not complained very much of pain. It is possible that this feature has been ex-

aggerated, and that it is due as much to individual personal factors as to universal conditions.

The effect of the drug when given under the skin is, in most cases, very nearly as powerful, if produced a little less speedily, than the effect when injected into a vein. The hypodermatic method is obviously more convenient than the intravenous, because it can be carried out by the average nurse.

The size of the dose and the frequency of administration would seem to be determined largely by the fact that the drug is rapidly excreted: small doses frequently repeated should be the general rule. But in conditions of extreme cardiac failure it may be proper to give one very large dose, preferably intravenously; and in such case, if the dose has been large enough to produce toxic effects, a considerable interval should elapse before another one is given, in order to allow the organism to recover from the poisonous effects of the first dose; this interval having no relation to the time required for elimination of the drug. In most cases where the drug is indicated in doses sufficient to produce a full therapeutic effect, but not necessarily an immediate one, smaller doses which are within toxic limits, given at short intervals, are more likely to produce the best results. I usually give it as often as four to six times a day.

The question of the dose of strophanthin when given four to six times a day must be determined to a large extent by the circumstances of the individual case. I am accustomed, in auricular fibrillation due to advanced decompensation in mitral stenosis (in which condition he has found it most effective), to begin with doses of 1/1000 grain (using the preparation of a manufacturing drug house of good repute); and if an appreciable effect is not promptly produced, to increase the dose to 1/500 grain; and thereafter to increase it cautiously, according to need, to as much as 1/250 grain. It is not often necessary or desirable, even in the very bad cases, to increase it further; if that dosage is not sufficient the case is probably beyond recovery. As soon as the pulse has become regular or marked improvement has taken place, the drug is given in smaller and less frequent doses, or discontinued intermittently or altogether. In cases of chronic myocardial degeneration with cardiac decompensation, even of extreme degree, great, if only temporary benefit may be secured by the administration of strophanthin hypodermatically in frequently repeated doses of therapeutic size. Strophanthin is the heart stimulant of choice in severe cardiac insufficiency due to mitral stenosis or chronic myocardial degeneration.

But in these severe cases where strophanthin proves so effective, it very often requires as a necessary adjuvant, morphin. It is impossible to overestimate the value of morphin in the treatment of advanced cardiac decompensation from any cause. It alone can relieve the intense restlessness, sleeplessness and dyspnea which are so often present, and which must be relieved in order to enable the strophanthin to do its best in restoring the circulatory balance. Furthermore, if given in the same injection with the strophanthin, it allays any local pain which the latter might produce. It should be given in these cases in sufficient doses, which may mean regular or occasional doses of only 1/24 grain or 1/16 grain, or of 1/8 grain or 1/4 grain, or of even larger doses. After improvement has taken place it is not usually a difficult matter to reduce the dose or to discontinue the drug altogether. In the hopeless cases the continuous use of morphin in sufficient doses is an important factor in prolonging life.

If strophanthin is so efficacious, why is not the tincture of the whole drug also efficacious? Why should it be generally slighted and called "unreliable" (as it has been in many of the text books?) There is nothing in strophanthin that is not found in the whole drug. Preparations of entire digitalis given by mouth are conceded to be more efficacious than the active principles given hypodermatically; why should the case be so different with strophanthus? It has been asserted, as a reason for the alleged irregularity of action of strophanthus by mouth, that the active principles are changed or injured in the alimentary canal so that they lose a part of their effectiveness; but the proof of this assertion is not satisfactory; and it is certainly not supported by my own clinical experience.

For many years I have used tincture of strophanthus as a major heart stimulant; in many conditions of cardiac insufficiency I have seen better results follow its use than that of digitalis; and I have found it to possess a much wider therapeutic range than digitalis. I have found it superior to digitalis in all kinds of heart disease in children requiring a direct heart stimulant, in stenotic valve lesions in adults, particularly mitral stenosis, and in all cases where myocardial degeneration of notable degree was present. I have rarely failed to observe benefit from its use, and cannot recall any bad results, excepting the gastrointestinal disturbances which appear as an idiosyncrasy in a small proportion of cases and disappear with discontinuance of the drug. (This idiosyncrasy was not noticed with the hypodermatic use of strophanthin.)

But success with the use of the tincture of strophanthus by mouth depends to a very large extent on the dosage employed; for the preparations made by the drug manufacturing houses of good repute may be accepted as reliable, notwithstanding the oft repeated statement to the contrary. If the dosage recommended by most American and English text books, viz, 5 to 15 minims every four hours, is employed, the results may not be altogether satisfactory; but if the dosage used is 1 to 3 minims every four hours, good results may be expected. This dosage may be kept up indefinitely and increased after tolerance has developed. In decompensation from mitral stenosis, or any form of valvular disease, two and a half minims every four hours, with rest in bed and proper diet, may well constitute the essential part of the treatment. In pneumonia, when the heart is beginning to fail, one and a half minims, every four hours, increased to three minims, if necessary, combined with small doses of strychnine, and perhaps caffeine also, form a plan of heart stimulation which meets most conditions. In fatty heart and chronic myocardial degeneration, with moderate or moderately severe symptoms of cardiac insufficiency, strophanthus tincture in the same dosage, with strychnine, usually, produces good results. In the myocardial weakness of the aged, with symptoms of cerebral anemia from moderate cardiac insufficiency and arteriosclerosis, one minim of the tincture, with or without strychnine, often produces amelioration of the symptoms.

The dosage of the tincture of strophanthus which I have found in an experience of many years to be most effective, corresponds closely to that which, I have been informed, is generally used at Nauheim, where the patients get very regularly, their "five drops" (2½ minims). Oertner, also, in his book on the treatment of internal diseases, recommends about the same dosage.

1218 Pacific Street.

## CONSERVATION OF HEARING BY SIMPLE MASTOIDECTOMY.

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New York.

The prevailing opinion is that the mastoid operation is an emergency operation—that the symptoms of mastoiditis which demand operative interference must be acute. This is far from the case in many instances. Pain, temperature, tenderness, discharge from the ear, sagging of the postero-superior wall of the canal, are signs readily recognized—signs which indicate the necessity for operation.

However, there are many cases of mastoiditis which pass from an acute to a quiescent stage. The symptoms enumerated above, with the exception of the sagging posterior wall and the discharge from the ear may all have disappeared. The patient complains only of the deafness and roaring in the head.

Such cases demand careful watching for two main reasons: first, because the disease has not been cured, evidenced by the profuse discharge of pus and, therefore, serious complications may light up at any moment; secondly because the deafness of which the patient complains is only too apparent and may result in permanent disuse.

The majority of cases of latent mastoiditis (for as such I have previously described this condition), occur in adults in whom the hearing is easily tested. However, the important cases occur in children, who, of course, seldom complain of their deafness and in whom hearing tests are useless.

Although it is important to operate on every case of acute mastoiditis in which the acute symptoms do not subside, it is just as important to operate upon cases of latent mastoiditis in which the hearing is evidently impaired. This is particularly so in children.

A few months ago I was called to see a boy of four who had an acute otitis media. The drum was incised. There was a discharge of serum which finally changed to mucopus. This discharge continued for five weeks during which time the child had no acute symptoms—no temperature, no pain, only slight tenderness over the antrum. The discharge might as well have come from the nasopharynx (the child had large tonsils and adenoids), as from the mastoid. The child finally could not hear a watch in contact with the ear. In order to conserve his hearing, I insisted on an operation. A prominent consultant was called in; he disagreed. An x-ray picture, taken the next day, showed that the whole mastoid was involved. I operated immediately. The child made a speedy recovery and to-day his hearing is practically normal.

Within the past few years I have seen a number of cases of latent mastoiditis in adults in which the only prominent symptom was deafness. It is difficult to convince such a patient, after his acute symptoms have subsided, that it is necessary for him to submit to a major operation in order to conserve his hearing. Such patients must be told that they cannot get well without operation and that complications may result. I have been able to convince these patients of the truth of my statements by having x-ray pictures of the mastoids taken. The affected mastoid shows up distinctly in the picture when compared with the picture of the other side.

Although I admit the possibility of certain cases of mastoiditis getting well without operation, neverthe-



less, one adopts the more conservative measure particularly as far as the hearing is concerned, if he operates before there is permanent destruction of the delicate mechanism which lies behind the tympanic membrane.

11 West 81st Street.

### SCABIES.

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Scabies is a communicable itching disease of the skin, due to an animal parasite and characterized by a multi-form eruption.

The direct cause is the *acarus scabei*. The female is about one-third of a mm. long and one-tenth millimeter wide. It is provided with four claws in front, each of which has a sucker and bristle; in back it has four claws which end in bristles. The male is only one-third as large as the female and differs in that the hind claws are also provided with bristles; the genital organs of the male are prominent.

The disease is not confined to any age nor to either sex. It is primarily a disease of uncleanness, and exists where there is overcrowding. It may be transmitted either directly or indirectly. When transmitted directly it requires close contact, contact such as required by shaking hands not sufficing to transmit the disease. Indirectly it is most often acquired by sleeping in a bed previously occupied by an infected individual. Although most often found in the lower strata of society, it is by no means limited to such, but is not uncommonly found in persons of cleanly habits. In such cases it is probably transmitted by sleeping in hotels, sleeping cars, etc. Thus in the fall of the year one finds the disease in those returning from vacations.

The incubation period of the disease is about three weeks; that is, the period elapsing after exposure before itching is noticed. The eggs incubate in from 12 to 15 days, and it is the second generation of the parasite which causes the itching. The adult female burrows into the epidermis and lays from twelve to fifty eggs; when these hatch there are living parasites under the skin which by their activities give rise to itching.

The one symptom of the disease is itching which is quite characteristic in that it is worse at night. Continual scratching causes abrasions, papules, pustules, and even ulceration. The localization of the pruritis is typical; it occurs between the fingers, the anterior surface of the wrists, the folds of the elbows, the axillae, the nipples and beneath the breasts in women, the abdomen, the genitals, inner sides of thighs, and in children between the toes. It never occurs upon the face.

Physical examination reveals excoriations, etc., in the situations cited above and in addition if examined closely one finds the typical burrow. This will be found most often in the interdigital fold and upon the wrist. It consists of a fine straight or zigzag dark gray or black line, which may or may not terminate in a vesicle. The burrow if excised and examined microscopically is found to consist of the female mite at the distal end, and ova and excrement along the course of the burrow.

In the clean person the above picture is not seen and it is in this type where diagnosis is difficult. Very few scratch marks are to be found, and a diagnosis of pruritis or urticaria is often made. In my own observa-

tion I have seen numerous patients who have been treated from all points of view varying from gastrointestinal derangement to thyroid insufficiency where the real nature of the ailment was scabies. A most diligent search over the entire body surface may be necessary to make a diagnosis; but if done faithfully one will usually find a burrow, which clinches the diagnosis.

Treatment is simple, but attention is necessary to details to insure success. The first step is a hot soap and water scrub which should be of at least one-half hour duration. This is followed by thorough inunction with an ointment of sulphur, balsam peru, styrax, or betanaphthol. After the inunction the patient is directed to put on underwear with long sleeves and long drawers, which are worn constantly until cessation of treatment. The following night the underwear is removed and another inunction is made, the same underwear being put on. This is continued for five nights. On the sixth night a cleansing bath is taken and clean underwear worn. One such course of treatment is usually sufficient, but there may be a recurrence after ten days due to the hatching of ova laid by the last generation of adult *acarus*. A second course of treatment will then clear up the disease.

All underclothing, bed linen, etc., must be boiled to insure against a reinfection.

The following ointments are used:

R Sulphuris Precipitatae .....	3i
Adipis .....	3i
R Betanaphthol .....	3i
Adipis .....	3i
R Sulphuris Precipitatae .....	3i
Balsami Peruviane .....	3i
Adipis .....	3i
R Styracis .....	3i
Adipis .....	3ii

The latter is especially valuable for children.

448 Ninth Street.

### FUNCTIONAL DISEASES OF THE STOMACH.

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#### Hyperesthesia of the Stomach.

In the great majority of these cases it is unnecessary to keep the patient in bed. Proper handling will relieve all but a very few, and these few can be treated in a hospital or sanitarium, as the occasion demands.

Here, as in almost all of the gastric neuroses, the intestine is an important factor, and to it my first treatment is directed. A thorough cleansing with castor oil for two or three days in succession, if the patient can take it without nausea, or with calomel in broken doses of .006 to .008 gm. (1-10 to 1/8 gr.), every half hour until .06 (1 grain) is taken, and then follow by a saline laxative, a seidlitz powder, a glass of Hunyadi water, or a dose of citrate of magnesia. The calomel is to be given once and followed by one of the above salines for two or three succeeding days. In addition to this, colonic flushing should be practiced daily for at least a week, and then continued on alternate days for some time. The temperature of the water should be at least 110° to 115° F. to obtain the best results.

I have been able to relieve many of these cases with practically nothing but the flushings and the application of heat by an arc light, or any of the powerful lights that are on the market, beginning with the application of both, daily, then alternating them daily, finally stop-



ping first the flushing, and then the light, as the patient improves. It may be necessary in the severer cases to confine these patients to the bed, with continual hot applications, but this is extremely seldom. I use in conjunction with this treatment a sedative, preferably strontium-bromide, given in .64 to 1.3 gm. (10 to 20 gr.) doses three times daily. I also use a combination of camphor monobromate and assafetida, .06 to .2 gm. (1 to 3 grs.) of each three times daily, with or without hyocine hydrobromate .0003 gm. (gr. 1-200), as I think best. Opiates and cocaine should be administered with the greatest caution, but are necessary in some cases. When there is anemia, I use the following prescription:

Acid Arsenious ..... .01 gm. (1-5 gr.)  
 Bland's Mass ..... 4. gm. (1 dr.)  
 M. Ft. Cap No. XII.  
 Sig.: One t. i. d. A. C.

For the diet, instead of giving the foods high in protein, I prescribe a diet composed mostly of vegetables and fruit. The vegetables should be given in the form of a thickened puree and the fruits are better stewed. It is unnecessary to exclude the proteins entirely, but give them in limited amounts of broths and eggs, raw at first, if agreeable, later cooked. The diet is gradually increased according to the condition of the patient until there is a complete return to the normal or solid diet.

#### PSYCHOLOGIC, SANITARY AND THERAPEUTIC WEDGES.

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We may never be able to interpret in full measure the inner or hidden meaning of that potent, mystical frame of three, a triangle, figuratively speaking, that pervades, governs and inspires, in more or less degree all mankind, as is represented in the doctrine of the Trinity. While we know that change is the only certainty of the ages, and that old formulated beliefs are slipping, and superstitions and ancient and inherited traditions are becoming packed away as "boxed complexes" in the average mind, yet we are assured in many ways that this grand old Trinity, though old, has not become a "has been," but is still in life, is life the highest and best, and is in very fact the whole Infinite Family directing, regulating and adjusting all uplifting, advancing functions, forces and activities, whether concealed or visible.

The increased glow of truth in modern sanitary science, a science manifesting a far-reaching grasp towards perfect cleanliness, gives us much to expect in the fullness of benefit from the growing practice of the three big C's, "Clean out, Clean up and Keep Clean"—a working-standard-trinity, a veritable one-big-decalogue in the interwoven gospels of health and decency ever showering blessings on the obedient, and punishment, without relenting, upon all others according to their offences.

"Fingers, Food and Flies" is another alliterative triplet on the same order, crammed full of protective possibilities from year-round dangers of acute diseases of germ or filth origin. The sanitary technique these three F's require is simply to establish the individual habit of banishing flies, of keeping the fingers clean and out of the mouth and nose, and of eating only clean, uncontaminated, wholesome food.

Getting the "sanitary conscience" educated, awake and active on these lines, will go far towards abolishing preventable diseases, as well as many conditions of the body below the enjoyable standard of health.

In therapeutics there is quite a list of medical formulae on the three-in-one plan which give a well-rounded, desirable, healing push, a result that is only secured apparently in some unknown way, by a happily combined team of three drugs. As representatives of this, we mention the A. S. B. pellet, the "Twilight Sleep" hypodermics, Dover's powder and the triple bromides. Others could be cited, but let this suffice. Then, too, there are some of the more bulky of this class made up of multiples of three, of which we mention but one, Warburg's tincture, which still holds no mean empyric sway, regardless of scientific dictum.

Under the increasing sway of the scientific spirit, unemotional, unbiased and hewing to the line, will these medical formulae established by empyricism become regarded as "such stuff as dreams are made of," and "vanish into thin air" and "forgotten lore"—even to the bank of ultimate matter, the Nirverna of honest dust, to spring up, though changed, into newness of life?

Colonia Building.

#### "Officers in Name Only."

This slurring reference to the Medical Reserve Corps, of the United States Army, appears in an editorial in the *Journal of the Am. Med. Association* for October 28, 1916, which is otherwise a fair presentation of the facts in reference to the transfer of the Corps to the Officers Reserve Corps of the Medical Department.

We hold no brief against the O. R. C., although its exact status has not yet been defined to the satisfaction of those who are studying the provisions of the Act with the purpose of transferring to it, if it seems best for the interests of the service and of the cause of preparedness.

That it is an onward step in the direction of universal military service commends it strongly to the patriotic medical man. How it will work out practically is "in the lap of the Gods."

What we depreciate in the editorial to which we refer is the unqualified expression of the opinion that the three hundred members of the "inactive" Medical Reserve Corps who have cheerfully accepted and faithfully performed the active duty to which they were assigned by the Surgeon General during the past five months (many are still on duty), should be classed as "officers in name only."

This statement is untrue, and the most charitable inference is that it is made by a civilian, who has remained comfortably at home while the men whom he criticizes were working on the border, on home-stations and in mobilization and training camps. When an honest man is manifestly in error, only one course remains for him—to acknowledge the erroneous statement as publicly as he made it. We have too much regard for our worthy confrere to doubt that such acknowledgment will not promptly be made.

Meantime, the Medical Reserve Corps still exists and is satisfied with the warm approval of the Surgeon General's office, which has been most gratifying to us.

HENRY C. COE.

#### Management of the Speech Defect Problem in the Public Schools.

Walter B. Swift, of Boston, believes that the management of the speech defect problem in the public schools demands a medical speech inspector to see all pupils and assign them to either a phonetic, stuttering, or a special class, and to have at the head of each of these divisions a teacher specially trained in one of these lines alone.—(*Educational Administration and Supervision*, March, 1916.)

## The Diagnostic Laboratory

Conducted by CHESTER T. STONE, M. D.,  
Brooklyn, N. Y.

### Test for Albumin in Cerebrospinal Fluid.

With has been applying Pandy's test with parallel tests according to Bisgaard, Ross and Jones' method in 225 clinical cases. He tabulates the findings in the cases of syphilis, comparing them with the cell count and the Wassermann reaction. Pandy's reagent is a concentrated solution of liquid phenol in distilled water. About 80 c.c. of the liquid phenol are mixed with the distilled water, stirred and placed in the incubator for several hours. After keeping a few days at room temperature, the upper watery part is used for the reagent. A drop of the cerebrospinal fluid is transferred with a Pasteur pipet to the bottom of a watch glass filled with the reagent. If no precipitate is thrown down in five seconds the findings are negative.

Pandy reported negative findings in all but five of 133 patients free from paresis, and these five had a history of syphilis. In 106 cases of parietic dementia the reaction was very pronounced and there was a weak response in nine. With concludes from his story of the reaction in 325 cases that an absolutely negative reaction is strong testimony in favor of normal conditions, while a very pronounced reaction testifies the opposite. As the technic is so extremely simple and as the findings are complete in a few seconds, he thinks the test will find useful application at the bedside, accepting the absolutely negative or the strongly positive responses as a criterion, not trusting to the less decided responses. A strong positive response calls for the application of other more exact tests, while an absolutely negative reaction is a fairly certain sign that the fluid is normal.—*Exchange*.

### Food Idiosyncrasy.

Certain foods cause in sensitive individuals symptoms such as swelling of the lips, tongue, buccal mucous membrane, pharynx and esophagus, vomiting, abdominal pain, diarrhoea, bronchial asthma and cutaneous symptoms, such as urticaria and angioneurotic edema. Some cases of eczema are included in this group.

Three diagnostic methods are: (1) The method of elimination, based on finding their article of food by exclusion; (2) cutaneous tests by causing an abrasion with a needle and vaccinating with a solution of food proteins; (3) intracutaneous test by injection of .01 c.c. of a 1 per cent. protein into the skin.

Patients may be desensitized by feeding gradually increasing amounts of the food protein until the skin reaction disappears. As a rule the food may then be eaten with safety. Another method is by subcutaneous injection of the food protein in gradually increasing amounts.

### Serology.

**Isolated Organ Lipoids as Antigen in Wassermann Test.**—With their method of employing the isolated ox-heart lipoids, L'Esperance and Coca have obtained a relatively low percentage (compared with the figures of Ritz and Sachs) of positive reactions in individuals denying syphilitic history, and a relatively high percentage of positive reaction in clinically recognized syphilis. Similar differences were observed in the results obtained in parallel tests with the isolated lipid antigen and the alcoholic extract of guinea-pig's heart muscle in a series of 706 cases. In 650 of the 706 cases the results of the tests were the same with the two

"antigens." In the remaining 56 cases different results were obtained. In twenty cases of thoroughly treated syphilis without symptoms, and other diseases, no inhibition was obtained at either incubation temperature even with 0.2 c.c. of the diluted extract of the guinea-pig's heart. In six cases of untreated secondary and tertiary syphilis complete fixation was obtained at both incubation temperatures with 0.001 c.c. of the diluted extract of the guinea-pig's heart. In all of these cases a similar result was obtained with the ox-heart lipoids. Of twenty-six cases of tuberculosis, malignant tumor and nephritis, all denying syphilitic infection, three cases of tuberculosis reacted positively with as little as 0.02 c.c. of the diluted extract of the guinea-pig's heart, and nine cases of tuberculosis, one case of malignant tumor and the case of nephritis reacted positively with 0.1 c.c. All of these cases were negative with the isolated lipoids. In one case of chancre, and in one of tertiary ulceration, the reaction was distinctly positive with the isolated lipoids, but it was completely negative with even 0.1 c.c. of the diluted extract of the guinea-pig's heart. In another case of primary syphilitic lesion the reaction with the isolated lipoids was strong, but with 0.05 c.c. of the extract of the guinea-pig's heart it was weak.—(*Jour. A. M. A.*, Oct. 21, 1916.)

### Bacteriology.

**Culture Medium for Tubercle Bacillus.**—Preparation of the medium used by Williams and Burdick:—  
1. Egg-white solution; dilute egg-white with ten parts of distilled water and shake thoroughly. To clear it, pass through a thin layer of cotton and then heat to 100° C. to hasten precipitation. Filter through paper.  
2. Egg-yolk solution; dilute yolks with ten parts of water and stir well. Clarify by adding normal sodium hydroxide. Complete solution of the yolk is not desirable. The emulsion should be slightly turbid. To attain the proper degree of turbidity, 1 c.c. of normal sodium hydroxide is usually added to 100 c.c. of the emulsion. The solution is heated to 100° C. and filtered.  
3. Meat infusion; 500 gm. of finely chopped lean veal are covered with 1 liter of water containing 15 per cent. of glycerin, allowed to infuse for twenty-four hours and filtered; 5 gm. of sodium chloride are added, and the infusion heated to boiling. It is again filtered and then rendered plus 1 per cent. alkaline. Place 300 c.c. of the 10 per cent. egg-white solution in a liter flask; 300 c.c. of the 10 per cent. egg-yolk solution in another flask and 400 c.c. of the meat infusion, to which is added 15 gm. of powdered agar-agar, in a third flask; sterilized in autoclave at 15 pounds pressure for 15 minutes. While hot, 1 c.c. of a 1 per cent. alcoholic solution of gentian-violet is added to the broth agar. The contents of this flask are now poured into that containing the egg-white and then the egg-yolk is added. The whole is poured back and forth from this flask to another so as to insure thorough mixing and then it is tubed and slanted. The tubes are left in their slanted position for about seventy-two hours at room temperature until the contents are well set. The cotton plugs are then trimmed and flamed and the tubes sealed with corks. This medium presents the same smooth inoculating surface as ordinary agar slants, contains as much moisture, is quickly made and is rendered absolutely sterile.—(*Jour. A. M. A.*, Oct. 28, 1916.)

**A New Haematoxylin Stain.**—L. Triboneau, M. Fichet and J. Dubriel have prepared a haemalum which contains silver haemateinate (*C. R. Soc. Biol.*, Paris, April, 1916). This haemalum is more readily prepared than those of Mayer or Gohmer, while it possesses the



advantage of permanency. It stains rapidly and has a high degree of specificity for the chromatin of nuclei. The haematein is made by treating an alcoholic solution of haematoxylin with oxide of silver. The silver oxide is formed by adding potash to a solution of nitrate of silver. The precipitated oxide is washed very rapidly four times by decantation. The haematoxylin and silver oxide are mixed and warmed on the water-bath. As soon as the haematoxylin is transformed to haematein the excess of silver oxide is removed by filtration through paper. The stock solution keeps indefinitely. When required, it is diluted twenty times with a solution of potash alum. The solution is used in the same way as ordinary alum haematoxylin. The sections can be counterstained with eosin.

#### A Simple Method of Concentrating Tubercle Bacilli in Sputum and Urine.

William Krauss, M. D., and J. S. Fleming, M. D., Memphis, Tenn., gives this method for sputum: Place 5 c.c. sputum in a 15 c.c. centrifuge tube, add 5 c.c. of 10 per cent. sodium chloride solution and shake in a shaking machine, or by hand if none available, until it is a thin homogeneous fluid as free from clumps as possible. Add 0.5 c.c. gasoline and repeat shaking process until the gasoline is thoroughly emulsified. Centrifuge at a low rate of speed until the gasoline forms a supernatant liquid immediately beneath which is a scum in which tubercle bacilli will be found if present in original specimen.

For Urine: Place 10 c.c. urine in 15 c.c. centrifuge tube and centrifuge three minutes at a rapid rate of speed. Pour off supernatant fluid. To the sediment add 10 c.c. of original urine and 1 gram of sodium chloride. Shake thoroughly or until the sodium chloride is dissolved and add 0.5 c.c. of gasoline. Shake again for about five minutes, then centrifuge slowly. The scum beneath the gasoline contains tubercle bacilli if present.

The use of gasoline embodies the same principle as would the use of ligroin. It gives good results, is cheaper and has proved much more satisfactory to us than the antiformin-chloroform method.

Often instead of using a centrifuge tube, a large size, narrow neck Babcock milk bottle is preferable, in that it affords greater concentration of the scum containing tubercle bacilli.

A trace of egg albumin to slide surface before making smear secures better fixation.—(*Journal of Laboratory and Clinical Medicine*, Sept., 1916.)

#### Value of Recent Laboratory Tests in Nephritis.—

Arthur F. Chace and Victor C. Meyers state that extensive study of several of the newer tests of renal function has shown: 1. That an increase of uric acid in the blood is a valuable early diagnostic sign of beginning nephritis. 2. The blood urea is a valuable guide in treatment in moderately severe nephritis, since its changes reflect the patient's condition promptly. 3. Blood creatinizing is of great prognostic value, indicating a fatal outcome in a comparatively short time if there is over 5 mgm. per 100 mls of blood. 4. Van Slyke's method of measuring the carbon dioxide combining power of the plasma is valuable as an index in both diagnosis and treatment. 5. In diabetes complicated with nephritis, determinations of the glycosuria are of little value, since the kidney permeability is lowered by nephritis. The blood sugar should be estimated in addition to that in the urine. 6. Finally, Ambard's coefficient has proved disappointing.—(*Jour. A. M. A.*, Sept. 23, 1916.)

**Test for Occult Blood in the Stool.**—A little of the stool (if former, from its central portion) is spread over a clean slide. Over this the reagent is poured, a bit of benzidin, dissolved in 2 c.c. glacial acetic acid, plus 20 drops of 3 per cent. hydrogen peroxide. A blue color shows the presence of blood. The test is as delicate and reliable as any benzidin test. Extraneous ferments, which constitute a possible source of error, may be excluded by heating the film.—Wagner (*Arch. für Verdauungskrankh.*, Vol. XX., No. 4).

**Study of the Boas-Oppler Bacillus.**—P. G. Heine-man and E. E. Ecker (*Jour. of Bacteriology*, July, 1916), as a result of their investigations of gastric juice, conclude that the Boas-Oppler bacillus belongs to the group of lactic acid bacilli which occurs frequently in foods, chiefly milk. Its presence in large numbers in the gastric juice is an indication, merely, of a reduction in the normal hydrochloric acid content, whether this is due to gastric ulcer, gastritis, pernicious anemia or gastric carcinoma, or possibly to other pathological conditions.—(*New York Medical Journal*.)

**Effect of Adding Fresh Human Serum to Artificial Media.**—Leonard S. Dudgeon, F. Bawtree and Dudley Corbett (*Lancet*, August 19, 1916), prompted by the observation that the bacterial growth was often apparently stimulated by the presence of human exudates in the media, have conducted a series of observations to determine the effect of normal blood serum. They found that addition to such serum to fluid or solid media greatly increased the growth of pathogenic organisms, while non-pathogenic ones were not similarly stimulated. It yielded positive cultures where other methods failed and greatly prolonged the growth of those organisms which tended to die out in artificial culture. It facilitated the growth of diphtheria, meningococci and pneumonic organisms very markedly, and materially altered their morphology in the direction of that normally found in fresh smears. In fluid media it provided an excellent means of securing abundant growths for the preparation of vaccines. The results recorded were secured with unheated serum, the heating having been shown to deprive it of many of its advantages.—(*New York Medical Journal*.)

**Lange's Colloidal Gold Test.**—According to Dr. Rubenstone and Dr. Schwartz (*New York Medical Journal*), the principle of the colloidal gold test of Lange is based upon the work of Zigmondy, who has shown that a solution of colloidal gold when brought into contact with certain albuminous bodies in the presence of an electrolyte (such as sodium chloride) would, in proper concentrations, cause a clumping together of the small colloidal particles, producing various changes in color and even precipitation. He also noticed that various albumins reacted differently in these respects, i. e., the point at which precipitation and color change would take place. Lange applied this method to the study of the spinal fluid and while observing the reaction of the colloidal gold chlorine solution on the spinal fluid in a case of general paresis he observed a certain color change, which, when repeated with spinal fluid of other paretics, gave the same characteristic results, the same reaction, but slightly differing in degree, was observed in tabes and so on to the various conditions of the nervous system attributable to lues.

The authors having employed this test in a series of cases, conclude:

1. Lange's colloidal gold test gave specific reactions

in cerebrospinal syphilis, tabes and paresis, as well as infectious meningitis, while normal spinal fluids gave negative reactions.

2. There was no difference in reaction observed between the various forms of syphilitic infections.

3. Lange's test should, whenever possible, be used as an adjunct in the diagnosis of cerebrospinal affections in conjunction with the Wassermann test, cystological in conjunction with the Wasserman test, cytological examination and protein estimation.—(*Medical Brief*, Oct., 1916.)

**Some Practical Points in Sugar Tests.**—Douglas Macfarlan, of Philadelphia, says that in considering the matter of sugar in urine we may as well from the first view it from the quantitative side. For it is the quantity of sugar that interests us, as this is one of the best indices of the disease and of the result of treatment.

Two quantitative tests are of value and should be used until one is confident that his technique is exact in both of them. When he has gained his confidence in himself and has frequently found the readings in the two tests correspond, then he can make a choice, though he will find both of value in checking up the result.

The tests in question are the fermentation and Fehling's. Both are equally exact, if the opportunities for error are known. Without multiplying words, I will

rehearse my personal experience and state my choice in the matter.

Fehling's quantitative test depends on the accuracy and stability of the "A" and "B" solutions, and I have found that these solutions made up exactly in the liquid form tend (no matter how carefully prepared) to alter in the course of a short time. I have, therefore, selected the convenient form of "A" and "B" tablets, which are accurate, stable and most handy to use. The copper sulphate tablet is dissolved in a few c.c. of water; then the alkaline tartrate tablet added. The water does not have to be carefully measured quantity, for it is known that the amount used contains exactly enough copper sulphate to equalize .005 gram of anhydrous sugar. Put this Fehling's solution in a centrifuge tube and turn to the diabetic urine. If its specific gravity is high, greater accuracy will be obtained if the specimen is diluted 1:5 or 1:10. Fill a 25 c.c. burette with the diluted specimen and begin heating up the Fehling's solution. When at boiling point, introduce, drop by drop, the specimen until a few tenths c.c. have been added. Heat the Fehling's again until the reaction appears yellow (do not overheat to the red oxide). Then centrifuge. The precipitate settles and still a bluishness appears in the supernatant liquid, showing that enough sugar has not been added to throw down all the sulphate.—(*Amer. Jour. Homeop.*, June, 1916.)

62 Pierrepont Street.

(To be continued.)

## The American Association of Clinical Research

JAMES KRAUSS, M. D., Permanent Secretary and Editor.

### AUTO-CONDENSATION IN THE TREATMENT OF HIGH BLOOD-PRESSURES.\*

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Ever since its advent in the therapeutic field auto-condensation has been regarded as one of our most valuable agents in the treatment of high blood-pressures. Greatly to his disappointment, the writer was unable, a few years ago, to find anyone who could vouch for an opinion regarding this therapeutic agent by any accurate data personally observed. That the immediate effect of auto-condensation is a reduction of systolic blood-pressure is easily demonstrated by any operator, but none of those consulted seemed able to state from accurate personal observation that the treatment afforded a permanent lowering of blood-pressure, or whether the immediate reduction was due to a depression of cardiac function or lowering of peripheral resistance. My first experience with auto-condensation proved somewhat contradictory and suggested additional questions for investigation. After almost every scéance the pulse of the patient was found reduced. Was this reduction a direct result of the electrical charge, or was it due merely to the twenty minutes' rest on the couch during the application of the treatment? Might not the lowering of the blood-pressure be attributed solely to this depression of heart action? Aside from its effect upon blood-pressure, were any other benefits to be derived from auto-condensation?

It is true that such men as D'Arsonval, Moutier, Delherm and Laquerrière have carefully exploited the effects of auto-condensation and have recorded their observations upon blood-pressure, oxidation, and elimination, but these observations were made with instru-

ments differing considerably from those now employed in America, and it would not be safe to accept unreservedly their experiences as applicable to present day methods.

Inasmuch as the instruments of to-day vary somewhat in construction and power it seems proper to state that the outfit used in the treatment of the cases recorded below was the Victor No. 7 High Frequency Coil, which deviates from the D'Arsonval type by possessing a higher voltage but a lower milliamperage. The condensation couch was used and the duration of the treatments extended to 15—20 minutes, repeated every day or every other day. Blood-pressure estimates were made just before and just after each treatment.

The following condensed report is taken from my clinical records:

#### CASE I. Mrs. S., aged 68. Pericardial adhesions.

No. Treatment.	Syst. Tension		Averages.		Pulse	
	Before.	After.	Before.	After.	Before.	After.
49. First 10 treatments.....	178.	164.4			65.	61.2
Last 10 treatments.....	160.6	161.4			66.7	66.
All 40 treatments.....	170.4	163.7.			66.8	63.7

#### CASE II. Mr. B., aged 64, 65, 66 and 67, respectively. Diabetes mellitus and aortic sclerosis.

No. Treatment.	Syst. Tens'n		Averages.		Pulse	
	Before.	After.	Before.	After.	Before.	After.
26. First 10 treatments..	198.7	187.4			74.	72.
Last 10 treatments...	179.8	175.			74.	71.8
All 26 treatments....	189.	180.7			73.4	71.2
30. First 10 treatments...	175.8	169.5			73.4	70.5
Last 10 treatments...	167.2	160.			72.8	70.7
All 30 treatments....	172.8	165.4			73.9	71.
32. First 10 treatments...	171.	157.3	99.3	98.6	72.5	70.1
Last 10 treatments...	163.4	153.8	94.6	91.6	74.4	68.1
All 32 treatments....	169.5	156.6	98.4	96.9	73.9	69.
22. First 10 treatments...	172.7	166.3	95.3	92.4	76.3	75.5
Last 10 treatments...	173.4	167.6	98.5	94.5	75.2	70.9
All 22 treatments....	173.3	167.4	97.	93.	76.3	75.5

#### CASE III. Miss R., aged 64. Mitral regurgitation.

No. Treatment.	Syst. Tension		Averages.		Pulse	
	Before.	After.	Before.	After.	Before.	After.
22. First 10 treatments.....	171.9	167.6			100.4	99.1
Last 10 treatments.....	174.1	168.4			88.2	88.5
All 22 treatments.....	173.	167.9			95.5	93.8

\*Presented to the American Association of Clinical Research, New York, Sept. 29, 1916.



## CASE IV. Mr. T., aged 59. Chronic interstitial nephritis.

No. Treatment.	Syst. Tension		Pulse	
	Before.	After.	Before.	After.
34. First 10 treatments.....	162.1	154.9	80.3	76.5
Last 10 treatments.....	163.8	159.4	76.9	73.9
All 34 treatments.....	162.1	157.8	78.9	76.

## CASE V. Dr. S., aged 50. Aortic sclerosis.

No. Treatment.	Syst. Tension		Pulse	
	Before.	After.	Before.	After.
28. First 10 treatments.....	158.8	156.6	86.4	85.2
Last 10 treatments.....	150.2	149.3	90.2	89.2
All 28 treatments.....	152.3	151.8	87.4	87.

## CASE VI. Miss D., aged about 55. Arterio-sclerosis.

No. Treatment.	Syst. Tension		Pulse	
	Before.	After.	Before.	After.
22. First 10 treatments.....	184.5	166.5	79.7	80.3
Last 10 treatments.....	171.2	168.	82.2	81.
All 22 treatments.....	177.4	167.1	80.7	80.

## CASE VII. Mr. D., aged 72. Arterio-sclerosis and cerebral softening.

No. Treatment.	Syst. Tension		Pulse	
	Before.	After.	Before.	After.
16. First 8 treatments.....	235.4	235.	78.9	79.2
Last 8 treatments.....	220.2	215.1	78.4	77.

## CASE VIII. Mr. H., aged 28; brawny build. Hypochondriasis.

No. Treatment.	Syst. Tension		Pulse	
	Before.	After.	Before.	After.
20. First 10 treatments.....	136.7	142.4	75.7	77.8
Last 10 treatments.....	134.6	139.5	78.2	80.

The most frequently obtained result of the treatment was an immediate depression of systolic tension, which occurred in all cases except case VIII where the blood-pressure was normal from the start. This was almost paralleled by the pulse rate, which in Case VIII also showed a rise. From the absence of a declining pulse rate in this case we may infer that the reduction of the pulse was not due merely to the rest in the recumbent position, to which his case was submitted, as well as the hypertensive cases. The close relation shown between the falling pulse rate and the lowering of systolic tension suggests that the latter was dependent upon the former, but this is disproven by the fact that no permanent impression was made by the treatment upon the pulse, while in the majority of cases reported the systolic pressure was permanently—i. e., as long as the course of treatment lasted, at least—lowered. That the effect of auto-condensation extends to the peripheral blood vessels will be seen from the almost constant reduction of diastolic tension, which though less marked than the fall of systolic pressure, yet was decided enough to be significant.

The best results of auto-condensation in this series of cases were obtained in patients with arterio-sclerosis. In the case of mitral regurgitation there were no apparent effects upon either blood-pressure or subjective symptoms. Nor did the case of chronic interstitial nephritis, which presented a phenolsulphonethalein excretion of 41 per cent. (in 2 hours) but no subjective symptoms, show any improvement in blood-pressure or albuminuria.

Most interesting was the action of auto-condensation in Case II of mild diabetes, with aortic sclerosis. Here the glycosuria, as well as the blood-pressure, was perceptibly affected. At the start the twenty hours' urine contained 449 grs. sugar, a trace of albumin, and a few hyaline casts, but no acetone bodies. After sixteen treatments the albuminuria was permanently disposed of, and tests for glucose proved negative even after a test meal containing 2 tablespoonfuls of cane sugar, whilst a steady decline in blood-pressure had been observed. Eight months later, glycosuria having reappeared (542 grs. in twenty-four hours) treatment was resumed. After one week of daily treatment the glycosuria again disappeared, but shortly afterwards traces of sugar could be detected in the urine at intervals. A year later a moderate amount of glycosuria was shown and the treatment was renewed with the result that in

two months' time sugar was reduced to 127 grs. in twenty-four hours. During the last, or fourth, course of auto-condensations the glycosuria was reduced from 410 to 155 grs. It should be stated in this connection that, excepting an occasional indulgence, the patient was on a sugar-free diet at all times. It seems, therefore, a legitimate conclusion to attribute the marked improvement in glycosuria observed during each of the four series of auto-condensations to this treatment alone. That the diabetes here manifested was not of renal origin will be understood from the fact that an indulgence of sugar in the diet would be promptly followed by an aggravation of the glycosuria, when present. For their bearing upon the general metabolism of the case the following records of urine analyses are added:

## Urine Before or at the Beginning of Treatment.

	Urea, Grs.	HCl Coef.	Alb.	Sugar, Grs.
December 23, 1912.....	485	0.025	0	191
March 10, 1913.....	437	0.028	Trace	449
January 20, 1914.....	488	0.02	0	542

	Ratios.			
	Acidity to Alk.	Urea to Amm.	Uric Acid to Urea.	Phos. Acid to Urea.
December 23, 1912....	35.6 to 22.	1 to 51	1 to 34	1 to 11
March 10, 1913.....	44.8 to 30.	1 to 38	1 to 42½	1 to 10
January 20, 1914....	29.2 to 20.	1 to 53	1 to 34	1 to 12.9

## Urine at End of 12 Treatments.

	Urea, Grs.	HCl Coef.	Alb.	Sugar, Grs.
March 24, 1913.....	415	0.029	0	135
February 1, 1915.....	480	0.027	0	625

	Ratios.			
	Acidity to Alk.	Urea to Amm.	Uric Acid to Urea.	Phos. Acid to Urea.
March 24, 1913.....	42.4 to 20.	1 to 54	1 to 34½	1 to 8.4
February 1, 1915....	44.8 to 24.8	1 to 48	1 to 36	1 to 11½

Note.—The day of the last collection of the urine the patient ate some sugared apples and drank sweetened whiskey, which accounts for the large amount of sugar excreted.

The above urea ratios, which are all within—or nearly within—normal limits, do not offer any evidence of an influence of auto-condensation on metabolism. This should not be construed as incompatible with the statements made by earlier observers that auto-condensation promotes oxidation and tissue change. Their observations were limited to the actual treatment with auto-condensation, while the urines reported above were the total twenty-four hours' excretions under the influence of the electrical modality only 1/72 of the time. Besides, any permanent effect of auto-condensation on metabolism can only be expected when this has become pathological.

In Case VIII, which at one time manifested a brief attack of pyrexia, the temperature, taken with a clinical thermometer just before and just after the séance, was recorded 38 times—for 19 treatments—but neither pyrexia, nor yet subnormal or normal temperatures showed any alteration by the treatment.

Case VII suffered mainly from cerebral thrombosis, with the usual symptoms of transient aphasia, numbness, tingling, disturbances of vision, vertigo, etc. The reduction of blood-pressure by auto-condensation was not attended by improvement in the patient's symptoms, and for this reason the usual course of treatment was both times cut short.

While it is admitted that the above observations when considered separately are of too limited extent to prove of more than suggestive value, nevertheless, inasmuch as they, in the main, confirm previous records, they may form a small part in a comprehensive system of research. Recognition should also be made of the probability that the results obtained with a coil of so high a voltage and low milliamperage as the Tesla machine employed would slightly differ from those results secured with the comparatively low voltage and high milliamperage of the instruments of the D'Arsonval type, so much more commonly used.

The tentative deductions to be made are embodied in the following summary:

1. By exerting a sedative effect upon heart action and by lowering peripheral circulatory resistance auto-condensation proved a valuable agent in combatting high blood-pressure of arterio-sclerosis, except in case of cerebral thrombosis, with its areas of cerebral anemia.
2. High blood-pressure due to chronic interstitial nephritis or to valvular heart disease showed no durable improvement from auto-condensation.
3. Not only was high blood-pressure permanently lowered by auto-condensation in a case of diabetes mellitus, but glycosuria was also materially reduced.
4. Normal blood-pressure was very slightly influenced by auto-condensation.
5. Oxidation and tissue changes induced by auto-condensation were too feeble, even under conditions of fever thermo-ataxia, to be detected by the clinical thermometer.

## Surgery

### The Direct Transfusion of Blood.

Lieut.-Colonel Primrose and Major Ryerson, Canadian Army Medical Corps, have observed the beneficial effect of the direct transfusion of human blood in hemorrhage. A lad of 16 had a deep cut in the calf of the leg. The wound suppurated and secondary hemorrhage from the posterior tibial artery occurred. He was sent to the hospital and in the clinic the artery was tied high in the wound; hemorrhage recurring, the vessel was ligatured through a fresh incision at the lower end of the popliteal space. Subsequently the wound continued to suppurate, the pulse was rapid and thready, and he steadily lost ground. Direct transfusion of blood was undertaken; the lad's brother acted as donor and the operation was performed by means of Crile's cannulae, and a considerable amount of blood was transfused. Towards the end of the operation the lad spontaneously expressed himself as feeling better, his pulse was no longer rapid and the blood pressure improved. Subsequently the wound became healthy, no further hemorrhage occurred, and he made an uninterrupted recovery.

Another instance was the case of a girl exsanguinated by repeated hemorrhages from a gastric ulcer. She was blanched, with a rapid pulse, low blood pressure, and sighing respirations, with restlessness. After transfusion she immediately improved, and made an uninterrupted recovery with no recurrence of hemorrhage. A corporal, aged 42, had been knocked down by a motor lorry, the wheel passing over his left thigh and left arm. There was a compound comminuted fracture of the upper third of the femur, and a compound fracture of the humerus above the insertion of the deltoid muscle. In both arm and thigh torn muscle protruded from the wounds, which were of a "bursting" character, and in the thigh, on palpation, the muscles seemed to be extensively torn away from their pelvic attachments. He had lost a great deal of blood, and was in a condition of profound shock. The fractured limbs were secured on splints, with as efficient reduction as his condition would permit. It was impossible to administer a general anesthetic. Morphine was administered to relieve his pain and combat shock. He rallied somewhat, but remained for some days in a critical state in spite of the administration of normal saline solution.

One week after admission his condition seemed desperate and they transfused 815 c.c. of blood. The patient expressed himself as feeling better; he said he felt "warm," his pallid lips became red, and his condition of utter exhaustion gave place to one of comparative comfort. The pulse became slow, regular and full. During the next few days improvement in his general condition was maintained. The urine was tested for hemoglobin for a few days after the transfusion, with negative results.

This patient left hospital in good condition; the fractures had united, but a sinus still persisted in the thigh.

Pte. H., aged 47, had been operated upon for hemorrhoids by excision and ligature. On the third day a considerable hemorrhage took place; this recurred on the fourth day when, under a general anesthetic, the area of operation was examined and some additional sutures inserted. The wound looked sloughy and unhealthy. Normal saline solution was ad-

ministered and the general condition improved and bleeding ceased.

On the fifth day hemorrhage once more occurred, and the patient's case became critical. He was blanched, with rapid pulse, sighing respirations, and exhibited restlessness. It was determined to transfuse him without delay. The pulse was 150 and blood pressure 50. While waiting for the final preparation of instruments, etc., his condition became so bad that it was feared he would die before the operation. His pulse was hardly perceptible and very rapid. They transfused 1,000 c.c. of blood, with excellent immediate results. The actual operation lasted thirty minutes, and when completed the patient had a pulse of 116 and a blood pressure of 96. The improvement was more than maintained. On the following day the pulse was 100 and the blood pressure 110.

Not only did hemorrhage not recur, but the wound subsequent to transfusion took on healthy action and healed readily. —(British Medical Journal, Sept. 16.)

### Gas Gangrene.

Colonel Cuthbert Wallace, Consulting Surgeon to the Expeditionary Force in France, says gas gangrene is a very striking feature in the surgery of this war.

d'Este Emery thinks the toxin kills the leucocytes which are the natural protection of the body. To have a sufficient supply of these it is necessary that the circulation be intact. Therefore, tissue devitalized by trauma, by constriction of the limb, or by actual damage, will favor the disease. Why, however, does the disease not stop when healthy tissue is reached? The explanation lies in the fact that the toxin, when present in large amount, inhibits emigration and kills the leucocytes. If there is no free escape the toxin accumulates to such an extent that it soaks through into the healthy tissue and kills the defensive leucocyte, and so the gangrene spreads.

Kenneth Taylor believes the mechanical action of the pressure produced by the gas is usually, if not always, the most important part of the infection. It brings about the death of the tissues from (a) the resulting anemia, (b) the actual mechanical fragmentation of the muscle substance, (c) the mechanical scattering of the infection. He shows in the earlier part of his paper that the experimental injection of the exotoxin produces softening of muscle and parenchymatous degeneration of the liver cells. His experiments *in vitro* show the same effect on pieces of muscle. He suggests that the rapid systemic intoxication is produced by the breaking down of the muscle substance, as injection of the exotoxin does not produce an effect comparable to that seen in the clinical course of the disease.

Wallace has formed these impressions:

It is rare to meet gas gangrene without a muscle injury.

It is chiefly a disease of the muscles, and is rarely dangerous unless muscle is involved.

It has been said that one of the most remarkable features about the *B. aerogenes capsulatus* is the fact that a bacillus usually but little pathogenic becomes suddenly extremely virulent. Barger and Dale have shown that an allied bacillus—the vibrio-septique—becomes at once extremely toxic when grown on muscle.

Cannot, then, the difference in the toxicity of the *B. aerogenes capsulatus* depend on the nature of the medium in which it is implanted? Will not this account for the difference in the clinical course of many gunshot injuries?

The lesion in its early stages may be described as a longitudinal one, running up and down the wounded muscles from the seat of the lesion. Muscles and groups of muscles are involved while others escape.

It is rare to find all the muscles of a segment of a limb involved, save in a segment distal to one in which the main blood supply has been cut off. Thus the whole leg dies and becomes gaseous when the femoral artery has been blocked in the thigh.

The muscles affected are in the first instance the wounded ones. If the pressure caused by the disease is relieved, the gangrene will most probably be confined to these muscles, but if the pressure is not relieved the other muscles may so have their blood supply checked as to fall victims to the infection.

Muscles contained in rigid compartments, such as the anterior tibial group, are especially prone to die if wounded.

There is but little tendency for the infection to pass from one muscle to another. This is well shown in amputation stumps, where one muscle dies and becomes gaseous, while the rest of the cut muscles remain healthy.

The infection is further advanced in the muscles than in the intermuscular areolar planes.

In the legs amputated for gas gangrene the only visible abnormality may be the brick-red color of the dead muscles.



The internal appearance of a limb affected with gas gangrene is quite different from that of such a disease as cellulitis of the neck, in which the areolar tissue is infected and the muscles normal.

The muscles become resonant from the presence of gas long before they become crepitant to the finger, though this phenomenon may be perceptible at an early date by means of the stethoscope.

Crepitation is usually a comparatively late phenomenon, and is due to the escape of gas into the areolar and subcutaneous tissue.

In an infected limb a vascular lesion will be followed by the death of the muscle or muscle group, which death would not have followed in an uninfected limb. It is believed that the pressure produced by the gas so raises the tension in the limb as to finally arrest the circulation.

In an infected limb there are several conditions of the muscles:

(a) Normal purple red contractile muscle, which may or may not be infected, as judged by cultural experiments.

(b) Dead, non-contractile, non-crepitant muscle, which has a peculiar red color and is less translucent than normal muscle.

(c) Dead, non-contractile, crepitant muscle, which has the same appearance as the last.

(d) Brown, black, or diffuent muscle.

(Muscle dead from the cutting off of the blood supply is a purplish brown and its naked-eye appearance quite different from (b) and (c).—(*British Medical Journal*, Sept 16.)

### Eczema as a Complication of Wounds.

Weiller says secondary lesions often appear round the margins of wounds, such as eczema. The secretion from the wounds, when septic, may be the irritant. In these cases, if the dressings are not changed often enough and particularly when moist dressings are used, the epidermis quickly becomes macerated, and the way is opened at once to secondary infections. The antiseptics used often cause irritation, which will disappear when simple aseptic methods are substituted. Washing the wounds may be carried out too freely, or baths used too long and too indiscriminately.

The attacks are often obstinate, and persist some time after healing. Weiller recommends a combination of hot-air baths and ichthyol paste. He directs a bath of hot air, at a temperature of from 80° to 100°, over the affected area, which has previously been cleaned with a damp swab, well wrung out in sterile water. This dries the area quickly, and has some microbicidal effect as well. Then he applies this paste:

R Ichthyolis .....	6
Zinci oxidi .....	40
Paraffini mollis .....	100

The heat of the bath renders the application easy. The bath is continued two minutes longer, and the part is then covered with a dry dressing.—(*Jour. des Pratic.*)

### A New Operation for the Treatment of Varicocele.

D. Del Valle considers the following operation simple and the results better than those obtained by similar procedures.

1. Make an incision 5 cm. long on the external abdominal ring, exposing to view the ring with its cord.

2. Dissect the anterior group of veins, separating it from the other elements of the cord. It is not necessary to dissect the spermatic artery. In all varicoceles it is generally the anterior groups of veins forming part of the cord that is affected; besides, automatically, the anterior group has a greater number of veins and is more important than the posterior group.

3. Divide the anterior group into two subgroups, anterior and posterior. Place a catgut ligature on the posterior subgroup one finger's breadth above the testicle and a silk ligature on the anterior one two fingers' breadth above the former one, holding the thread.

4. Make an incision on the fascia of the external oblique, within and parallel to the internal pillar of the inguinal canal; introduce a forceps through the incision, directing it so as to come out at the orifice of the external abdominal ring; seize the ends of the silk thread and pull through. Thus the entire anterior group of veins passes through the opening in the fascia, and by means of a stitch it is fixed to it after ascertaining that the testicle has remained at the required height.

5. When the posterior group of veins is the one affected, the operation is the same except that the opening in the fascia is made outside the external pillar of the inguinal canal and not within the internal pillar.—(*Surg., Gyn. & Obst.*, 1916, xxii, 734.)

## Diagnosis and Treatment

### Ileo-cecal Incompetence.

John Bryant of Boston remarks that the diagnosis of ileo-cecal incompetence is absolute by means of roentgenoscopy. In the present stage of development of the science it is as inexcusable to omit roentgen study of an intestinal case which does not readily react to treatment as it is to neglect a Wassermann test in an appropriate case. Given a case with a chronic intestinal history, with local pain, coarse crepitation on pressure over the right iliac fossa, excessive gas formation not easily relieved, constipation, stasis, and evidences of toxic absorption; a presumption of valvular incompetence is created which should be subjected to proof.

Under toxic symptoms come migraine and recurrent headaches, fatigue worse in the morning than at night, inability to rest, and early morning loss of sleep, cold extremities and sub-normal temperature, constant fatigue posture, and a yellowish discoloration of the eyes and skin; the skin may show anything from a faint dirty yellow color to the bronzing of Addison's disease, and is especially noticeable about the eye socket where first the lower lid and then the upper lid acquires progressive coloration.—(*Bost. M. and S. J.*, Oct. 19, 1916.)

### X-ray Treatment of Hyperthyroidism.

Malcolm Seymour says the pulse rate is nearly always reduced, and this almost always at once. The tremor and nervous symptoms improve from the start. The gland rapidly diminishes in size in some cases, remains unaffected in others, but if hard, tense and throbbing, the throbbing diminishes and the gland becomes softer. The body weight practically always immediately increases.

Advantages of this treatment:

1. There are no fatalities.
2. There is no resulting scar, as after operation.
3. It does not interfere with the patient's occupation.
4. It is painless and causes very little inconvenience to patient.
5. If unsuccessful, an operation may be done with less risk, because of the favorable action of the x-ray on the thymus gland.

The x-ray treatment of Graves' disease should not be undertaken except by those thoroughly experienced in roentgen therapy. The dosage must be accurately measured, for if the rays are applied in a haphazard manner without knowledge of the total dosage, the result may be unsatisfactory, resulting in serious burns or in total destruction of the gland, causing myxedema.

The diagnosis of hyperthyroidism is frequently overlooked, and is mistaken for so-called neurasthenia, and is especially confused with early pulmonary tuberculosis.—(*Bost. M. and S. J.*, Oct. 19, 1916.)

### Iritis.

W. L. Rhodes of Kansas City says the treatment of the rheumatic type of iritis consists in the early and frequent local use of atropin and dionin, together with hot, moist applications, while internally he gives sodium salicylate in five to ten grain doses. Where the focus of infection is found to be in diseased tonsils, prompt improvement usually follows a tonsillectomy, the same being true where infection comes from diseased gums. After proper treatment has been instituted, the iritis subsides as the diseased condition of the gums improves.

The various ointments do very little good; they are a disadvantage in that they keep the cornea gummed up with an oily coating which lessens the effect of the atropin.

The treatment of the syphilitic type of iritis is systematically the same as of a syphilitic manifestation in any other part of the body. Salvarsan intravenously, or neosalvarsan intraspinally, is of distinct advantage, while internally potassium iodide in increasing doses, combined with mercury in the form of an inunction, is the best treatment. Locally the use of atropin and dionin, and of hot moist applications is indicated.

It is a grave mistake to use the yellow oxide of mercury locally, and at the same time potassium iodide internally, on account of the precipitation of mercuric iodide, which occurs when the potassium iodide bearing tears comes in contact with the yellow oxide of mercury ointment. This will cause a flare-up of all the symptoms and the patient will complain of increased distress.

Sodium salicylate in five grain doses, every three hours, will relieve the pain in most cases of iritis, and is of special benefit in the rheumatic type of the disease. Hot moist packs frequently used often give marked relief, and are indicated in all cases.—(*N. Y. Med. J.*, Oct. 7, 1916.)

### Primary Carcinoma of the Urethra, Retention of Urine from Obstruction, Restoration of Function by Radium.

G. E. Shoemaker says the urethra has been called the "rarest location" for primary carcinoma. Most cases are merely extensions. In 1908 McMurtry could find only 26 recorded cases. Sielman reports a case relieved by x-ray. Leguen and Chéron of Paris arrested the destructive process for two and a half years with radium.

In the author's case, a multipara of fifty years applied because of complete urinary retention from urethral obstruction. There was no bleeding, no ulceration, and no tumor. The urethra felt through the vagina like a hard, fixed, pencil-sized ridge extending from the retracted meatus backward nearly to the base of the bladder. The edges of the meatus were hard, irregular, nodular, and ridgelike, with but little enlargement or surrounding infiltration. As incontinence would have followed surgical removal, radium was applied by the author in collaboration with Newcomet, while bladder paralysis and cystitis from enormous distention were treated. After nine inter-urethral applications, three hours each, the patient was able to urinate normally. The urethra was still cordlike. Microscopical diagnosis: squamous-celled carcinoma. Wassermann test for syphilis was negative.—(*Surg., Gyn. & Obst.*, 1916, xxii, 730.)

### Clinical Thermometer as a Disease Carrier.

L. M. Pisculli of New York, after a series of experiments in diphtheria and broncho-pneumonia, found that all thermometers taken from patients carry live pathogenic germs. They are, therefore, disease carriers.

Washing them in water and wiping them dry in no way destroys the germs or even reduces the danger of carrying infection. Cold water hardens and so fixes the mucus with the containing bacteria on the thermometers.

It is absolutely imperative to disinfect the thermometer after using it on a patient and in every single case, no matter how insignificant the cause of his fever may appear to-day, tomorrow you may find that you have used your thermometer on a typhoid or pneumonia patient.

Physicians must either devise some method of disinfecting the thermometer while carrying it in his case, or spend a few minutes in each patient's house to disinfect it.—(*N. Y. Med. J.*, Oct. 28, 1916.)

## Correspondence

### Deception in the Sale of Drugs.

To the Editor of THE MEDICAL TIMES:

I read with much interest your paper entitled "The Necessity of Analyzing Drugs for Army Use." My old friend, Surgeon General Sternberg, told me a great many incidents of the kind you have referred to in your valued contribution to this most important subject.

Here is one trick played upon the Government during the Civil War when quinin was high in price: A manufacturer supplying the Government with quinin sulphate in ounce bottles purchased his supplies from one of the large manufacturing chemical houses, inverted the bottles in a pan of water until the labels covering the corks were loose, which he then carefully removed and emptied out a portion of the quinin from the bottle. The bottles were then filled up with water and the labels pasted on again. As quinin is capable of absorbing considerable water without noticeably changing its condition, this fraud was not detected for some time. Thus this drug netted the house preparing it a handsome fortune.

Another trick with which I was personally acquainted consisted in diluting fluid extracts 50 per cent. and selling them to the hospitals as hospital fluid extracts. This house became so greedy that they concluded to cut down the strength of the alcohol used in preparing the fluid extracts and consequently the diluted products were not even 50 per cent. in strength. They realized the value of analyzing drugs for army use and therefore placed the word "assayed" on all of their fluid extract labels irrespective of the fact that many fluid extracts, because of the character of the drugs from which they are prepared, do not permit of assay. As they had no scales in their so-called analytical department that would turn on less than one-half grain, the managers gave themselves away to a class of pharmacy students who went to their laboratory. A convenient fire destroyed their laboratories just before the passage of the Pure Food and Drug Act in 1906 and saved them the necessity of adopting honest methods of doing business.

Another trick of the *caveat emptor* variety adopted by one dishonest manufacturer consisted of the following method of deception:

It is the custom of manufacturers of pharmaceutical preparations to print in their catalogs after the names of their fluid extracts and their standardized preparations a statement of the standard under which the preparation is marketed. The house referred to copied from these lists and adopted for their own price lists the standards referred to, but neglected to standardize their preparations. At that time there was no such careful inspection of the condition of the drugs and preparations on the market as now exist, consequently the house referred to was able to secure quite a thriving business by cutting prices to a point where it is impossible for honest houses to compete.

We are certainly to be congratulated as physicians, pharmacists and manufacturers of *materia medica* supplies that the Pure Food and Drug Law of 1906 was passed and has been so well enforced by the United States Government. It has destroyed an enormous amount of unfair competition and given the honest manufacturers protection in the marketing of honestly prepared pharmaceutical products, but there is still much to be done. Not only is it necessary for the drug inspectors to be eternally vigilant to keep the market clean and wholesome, but it is also necessary for experts both in Government employ and in the employ of manufacturers to continue their investigations for the purpose of improving methods and increasing the scope of drug standardization.

Such papers as yours are of great value in this connection. Very few physicians have any adequate conception of the importance of the subject. When one considers that the tinctures of digitalis on the market at the present time vary in strength as high as 300 per cent. and tinctures of strophanthus vary 6000 per cent. in their activity, it is evident that there is still work to do in perfecting our methods of standardization and insisting upon the adoption of standards for these important preparations.

F. E. STEWART, M.D.

Philadelphia.

### The Self-Supporting Hospital.

To the Editor of THE MEDICAL TIMES:

The article in your November issue under the title of "A Specious But Vicious Principle" it is to be hoped, will not be missed by any of your readers. Without dwelling on the detailed misconception of the original article published in the July number of the *New York State Journal of Medicine* called "A Self-Supporting Hospital," the writer evidently has taken fright at the thought of plans for a hospital which is to support itself; for he sees amongst his colleagues—general practitioners cast upon a patientless shore—a heap of dismal wreckage.

If the idea of a hospital in which self-respecting people of moderate means can obtain the best of medical and surgical care without being "put to it" to accept of charity, is good, then will the plan probably live: if it is bad, then should it die—the onslaughting doctor notwithstanding. However, it ought to be observed if the original text is carefully read that deeply woven in the whole fabric of the scheme is a well directed aim to bring more justice to the medical profession at large as well as the people at large.

J. BAYARD CLARK, M. D.

New York.

### Demonstrating Calcium Deficiency.

To the Editor of THE MEDICAL TIMES:

As the readers of your progressive journal are more or less familiar with my arguments adduced in favor of calcium depletion and consecutive magnesium substitution as an essential factor in all diseased conditions, it will prove especially interesting to learn that a method has been discovered by which we can demonstrate calcium deficiency—by a chemical examination of the blood.

This information was brought to my attention by Dr. Philip B. Hawk, Professor of Physiological Chemistry in Jefferson Medical College, who has been engaged in studying calcium metabolism during the past few years. Only recently has his attention been directed to blood examinations, and he finds that in both nephritis and diabetes the blood is lacking in calcium salts. Such being the case, it follows that the tissues are not properly nourished; hence, the susceptibility to disease and also the prolonged convalescence after acute ailments. In all chronic ailments, the prompt relief afforded by calcium medication warrants the deduction that this condition must be universal—and should command immediate attention.

JOHN AULDE, M.D.

Philadelphia.



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## Bleeding the Doctor: A New Sport.

It appears to be a *settled policy* on the part of the companies carrying compensation insurance to shake down physicians' bills. This venesection of the profession seems to be systematized. If your bill is thirty-five dollars you are asked to reduce it to twenty-five. You have dressed the wounds too often; in such a case as the one in question the company is informed by its medical advisers that a fewer number of dressings would have been sufficient; if you are not satisfied it is proposed that the case be adjudicated by the Commission. Most physicians, it would seem, compromise the cases.

A moment's thought will convince anyone that as a business proposition such a policy must save a great deal of money to the companies. The aggregate loss to the profession must be correspondingly great.

We are not aware what fate is met by disputed accounts that are submitted to the Commission. It would be highly interesting to know, and perhaps significant.

The medical profession seems quite helpless in matters like these. The impudence of the companies is met meekly and their compromises accepted, when in practically every case their proposals are unfair and the motive clear as daylight.

The companies have found, of course, that it is perfectly safe to deal with the profession in this manner.

Picture to yourself how, under health insurance, the number of your visits and office treatments will be disputed as excessive.

Picture also to yourself the personnel of a health insurance commission. Can you not see the insurance men on it settling your disputed claims?

## Tempora Mutantur.

It is rather amusing to see in the last number of *Munsey* an article by the late chairman of the House Committee of Military Affairs, on the Medical Corps of the Army. Coming from a persistent opponent of the increase of the corps to the seven per cent., desired by the Surgeon General, it does not ring true and is to be regarded as a sort of perfunctory valedictory from the author of the absurdly unpractical Army bill, as he retires from an office in which, according to the "Regulations," he was safe from criticism inside of the service.

Mr. Hay's animus against the Medical Reserve Corps is revealed by the fact that he makes no reference to it as part of the regular medical department, though he refers somewhat vaguely to its "eminent" members.

It is difficult to take seriously his flattering tribute, when we remember how he went back on his promise not to abolish the M. R. C. See how beautifully it sounds:

"The story of medicine and surgery in our army reads like a romance. It is all the more a romance because these achievements were the work of men inspired solely by that stern sense of duty which prevails in the army, without the hope of personal reward or financial gain. The immense benefits that have thus come to soldiers everywhere, and to humanity in general, have been entirely the fruit of labors of love."

Doubtless the Officers' Reserve Corps of the Medical Department present some advantages over the Medical Reserve Corps, but a promise is a promise and now that the Hon. Mr. Hays has been retired to the judicial position, in which he can do no more mischief as a legislator, we may be permitted to sum up his article in one word—"taffy." H. C. C.

## High Heels and Feminism.

The wearing of high-heeled shoes leads to a shortening of the tendo Achillis and contraction of the gastrocnemius. Consequently when we attempt to persuade women to wear sensible shoes they meet us with the declaration that low-heeled shoes make them tired and miserable, which is true, because of the shortened tendon. Immediately they resume high-heeled shoes they are comfortable.

Human society has done something of the same sort in the past to the minds of women, and the cynic asks why women have not contributed more to science, and art, and literature.

For ages the mind of woman has been high-heeled, so to speak. Recently we have begun to substitute low-heeling, but shortened intellectual tendons are still recalcitrant.

The girl who from the outset wears sensible shoes will never acquire a shortened tendon.

When women can begin life in a sensible way—when life is sensible—they will accomplish all that men have accomplished, and probably more.

Then we shall be no longer astonished when we see women *comfortably* and competently engaged in the scientific, artistic and literary work of the world.

To define what we mean by beginning life in a sensible way is not yet possible without giving offense to the conventional shoe fitters of society.

When the woman question is looked into sincerely there is no room for cynicism.

## The Shadows of Coming Events.

Wages are higher than ever before, but as the workers earn more money it is promptly taken away from them through inflated prices. Our social forces are so

directed as to insure relative poverty on the part of the masses. The middle class of people, prosperous in a small way, is dwindling more and more, so great does it find the attrition to which it is subjected by the upper and lower groups.

Keeping pace with this social realignment we encounter schemes of paternalistic character. In the course of time there will be three classes in place of the three classes which we have now. Instead of the rich, the middle class, and the poor, we shall have the rich, their retainers, and the poor. The first will constitute a moneyed aristocracy, the second group will be made up of a much larger group than the first, but in no way comparable in numbers with the middle class of to-day, while the third group will consist of the thoroughly Prussianized poor.

This is the trend now, and it will be helped tremendously by the war, for the war has compelled us to take thorough cognizance of Kultur.

It is not hard to divine what part will be played by the medical profession in the new feudalism and into what group they will gracefully fall.

The manner in which compulsory health insurance is being "accepted" and even "accelerated" by the profession is an exact index of what is to come.

#### Penalties For Not Advertising.

The medical profession does not advertise in the lay press nor in any other way.

This is one of the reasons why our influence is not greater.

We are continually blaming ourselves for whatever loss of prestige we have suffered and for our alleged fall in public esteem.

But some of the causes of these things lie outside of ourselves. American psychology ascribes importance to bodies of men according to their advertising power.

The freak cults are treated with increasing respect because they are advertisers. The metropolitan dailies are proof of this.

In an age of money standards and advertising the medical profession is at a serious disadvantage.

Through this period of our history, however, we must adhere to our principles more rigidly than ever.

#### An Unseemly Controversy.

In the London *Lancet* of September 16 Sir Almroth Wright makes a scathing reply to Sir W. Watson Cheyne's article on the antiseptic treatment of war wounds as contrasted with Wright's salt solutions. Cheyne's paper appeared in the *British Journal of Surgery*. So great is the acerbity of Sir Almroth Wright's strictures that the *Lancet* offers an apology to its readers for printing them. His article is about the worst exemplification of polemical medical writing of which we have any knowledge. From all points of view it is an unfortunate performance and a strange revelation of one side of a great man's mind. The editor hints that its publication is obligatory because it is an official document in a way, and makes it quite evident that its presentation is the most unpleasant and embarrassing duty that he has ever performed.

We think that this performance of Wright's must be viewed in conjunction with his notorious effort in connection with the militant suffragettes some years ago. His book on the subject will be recalled.

Somehow or other we try to persuade ourselves that our great scientists are above certain things, but it appears to be a vain fancy. The annals of medicine

are full of discreditable instances of petty jealousies and mean bickerings unworthy even of the back stairs of life.

It is because of this sort of thing among statesmen that we have to bear the burdens and penalties of war, and the quarrels of medical scientists doubtless affect seriously the interests of the sick.

#### Challenging Facts.

G. Arbour Stephens, of Swansea, England, again reports (*New York Medical Journal*, October 28, 1916) striking results from the use of distilled water in syphilis, rheumatism, gonorrheal rheumatism, inflamed glands and appendix cases. In a case suffering from syphilis and gonorrheal rheumatism the man's occupation was resumed after three injections of 10 c.c. distilled water, although he had not worked for months. Chronic ear discharges have responded well. In constipated people the treatment obviates the necessity of taking aperient medicines. Satisfactory results have been noted in three cases of lead poisoning.

The author proposes the use of distilled water in leprosy, and is confident that it will be found of great value.

The rationale of the treatment is thought to be that distilled water, which has a high surface tension, when brought into contact with the leucocytes causes osmosis outward, whereby the antibodies therein are rapidly mobilized; also the leucocytic diapedesis is stimulated so that the scavenging qualities are improved.

These are challenging facts that ought to be examined seriously.

#### Surgical Preparedness.

Doubtless by this time the surgeons working in the European armies have become quite as habituated to frightful military injuries as they were to industrial wounds before the war.

There is no reason why our own surgeons should be appalled by the likelihood of a war, should such a situation ever arise in this country, because of the awful prospect of military wounds, for they have been thoroughly trained in dealing with the traumatic results of our industrial frightfulness.

It is a more or less overlooked fact that no body of men is so well prepared for war as the surgeons. Most of the officers of our army have had little or no experience in actual warfare, whereas the surgeon in our large hospitals has years of active service in the industrial warfare behind him.

When the carnage of war comes the surgeons step naturally into their places and are absolutely equipped to meet requirements in expert and wholly dependable fashion.

#### Birth Control: Some Pertinent Questions.

How much of the birth-control movement is pure and commendable zeal in behalf of sexually exploited women, and how much sordid commercialism?

There are certain chemicals upon the market credited by their makers as more or less infallible contraceptives. Certain mechanical appliances also come to mind.

To what extent are the militant pioneers of the movement subsidized by proprietary interests? To what extent do their enmities represent merely trade rivalry? To what extent are the offensive types of medical propagandists under pay?

To what extent is the whole movement blossoming of a conspiracy on the part of commercial opportunists?



How much of this thing is good, and how much vile?

Let us trust our intuitions more, too, in this matter. Let us stop giving the benefit of the doubt to the obviously objectionable personages whom we have tried to convince ourselves are white men.

### Shouting Lymphocytes.

Some of the terms regarded by us as rather exclusive technical property are being appropriated by our brethren of the lay press. Thus in the *New York Sun* of November 3 we encounter:

"The fierce *Post* discards Mr. Hughes because he could not provoke its lymphocytes to utter a loud yell."

It would seem that functions are ascribed to the militant cells of the blood by newspaper men which are certainly picturesque if not authentic.

We should not be surprised if we ran across, in some lay publication, an allusion to the honk of the neurons.

All terms are liable to conscription nowadays in the struggle to express more and more complex situations.

We believe that the expression which we have quoted is a variation of President Wilson's phrase "shouting corpuscles."

### Apropos of Some Recent Remarks of Secretary of War Baker.

While there were doubtless many medical men of the best type in Washington's army, the majority of them do not appear to have approached the civilian practitioners of the day in point of character or ability. In expressing his opinion of the army surgeons it is to be assumed that Washington took into account lack of medicines and supplies, and in his letter to Congress in the autumn of 1776 estimated accurately the caliber of his medical officers. We quote from Washington's letter:

No less attention should be paid to the choice of surgeons than other officers of the army. They should undergo a regular examination, and if not appointed by the Director-General and surgeons of the hospital, they ought to be subordinate to and governed by his direction.

The regimental surgeons I am speaking of, many of whom are very great rascals, countenancing the men in sham complaints to exempt them from duty, and often receiving bribes to certify indispositions with a view to procure discharges or furloughs.

But independent of these practices, while they are considered as unconnected with the general hospital, there will be nothing but continual complaints of each other—the director of the hospital charging them with enormity in their drafts for the sick, and they him for denying such things as are necessary. In short, there is a constant bickering among them, which tends greatly to the injury of the sick, and will always subsist till the regimental surgeons are made to look up to the Director-General of the hospital as a superior. Whether this is the case in regular armies or not I cannot undertake to say; but certain I am, there is necessity for it in this, or the sick will suffer. The regimental surgeons are aiming, I am persuaded, to break up the General Hospital, and have in numberless instances drawn for medicines, stores, etc., in the most profuse and extravagant manner for private purposes.

Much as we should like to extenuate in behalf of the regimental surgeons, Washington's unequivocal denunciation of many of them as very great rascals gives us pause.

It is only fair to say, however, apart from the matter of the surgeons' alleged moral obliquity, that the sick soldiers were grossly neglected by the public, in proof of which we have the testimony of Dr. John Warren. Hardly any supplies were provided for them, which accounted for some of the forays upon private property.

How much could be expected of these starving surgeons, who shared the hardships of the sick men?

## Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

### Some of the Principal Medical Landmarks of the Past Fifty Years, Consecutively Listed.

- 1865—Memoir on plant hybridity (Mendel).  
Infectiousness of tuberculosis demonstrated (Villemin).
- 1866—First hygienic laboratory (Voit).  
Vasomotor nerves investigated by Ludwig and Cyon.  
Marion Sims' Notes on Uterine Surgery.  
Sympathetic ophthalmia described by Graefe.
- 1867—Antiseptic surgery (Lister).  
Physiological optics (Helmholtz).  
Stomach intubed by Kussmaul.  
Traube's work on semi-permeable membranes.  
First International Medical Congress (Paris).
- 1868—Adenoids described by Meyer of Copenhagen.
- 1869—Esmarch's first-aid bandage.  
Medical inspection of schools proposed by Virchow.  
Nerve centers of frog investigated by Goltz.  
Kidney excised by Gustav Simon.  
Hypnotic effect of chloral hydrate demonstrated by Liebreich.  
American Journal Obstetrics founded.
- 1870—Localization of brain functions (Fritsch and Hitzig).  
Vaginal ovariectomy (Thomas).  
Serpiginous ulcer of cornea described by Saemisch.
- 1870-71—Vaccination tested in Franco-Prussian War.
- 1871—Darwin's Descent of Man.  
Bacteria stained with carmine by Weigert.
- 1872—Medical Times founded.  
Oil immersion lens (Abbe).  
Normal ovariectomy (Battey).  
Effects of latent gonorrhea in women described by Noeggerath.  
English act protective of infant life.
- 1873—Spirillum of relapsing fever described by Obermeier.  
Hemostatic bandage (Esmarch).  
Myxedema described by Gull.  
Larynx excised by Billroth.  
Mastoid operation (Schwartz and Eysell).  
Retinoscopy (Cuignet).  
Revaccination made compulsory in Germany.
- 1874—Vienna Cholera Conference.  
Legislation protective of infants in France.  
Dried blood smears and improved staining methods (Ehrlich).  
Katatonia described by Kahlbaum.  
Trypsin discovered by Kühne.
- 1875—Hemolysis from transfusion of alien blood discovered by Landois.  
Infantile scurvy described by Barlow.  
Parasitic amebæ observed by Lösch in dysentery.  
Rest cure (Mitchell).  
Compulsory meat inspection (Germany).  
Public Health Act (England).  
Boston Medical Library founded.
- 1876—Imperial Board of Health founded at Berlin  
Royal Sanitary Institute founded (London)  
Johns Hopkins University founded.  
Royal Academy of Medicine founded (Rome).  
Physiological Society of London founded.

- International Hygienic Congress at Brussels.  
 Sayre's gypsum corset for spinal deformities.  
 Salicylic acid isolated by Kolbe.  
 Lombroso's Criminal Man.  
 Paquelin cautery.  
 Cæsarean section with excision of adnexa (Porro).  
 Anthrax bacilli grown on artificial media by Koch.  
 Tuberculosis treated by rest cure in open air (Dettweiler).
- 1877—Bacillus of malignant edema discovered by Pasteur.  
 Corrosive sublimate antiseptis introduced by E. von Bergmann.  
 Mastoiditis clearly described by Bezold.  
 Tarnier axis-traction.
- 1878—Causes of traumatic infections discovered by Koch.  
 Cancerous uterus excised by Freund.  
 International Congress of Hygiene (Paris).
- 1879—Discovery of gonococcus by Neisser.  
 Cystoscopy (Nitze).  
 German food legislation
- 1880—Streptococcus and staphylococcus isolated by Pasteur.  
 Typhoid bacillus isolated by Eberth.  
 Parathyroid gland described by Sandström.  
 Balfour's Embryology.  
 Iodine introduced in surgery by Moorhof.
- 1881—Parasite of malarial fever discovered by Laveran.  
 Resection of pylorus (Billroth).  
 Vaginal excision of uterine tumors (Czerny).  
 Nephropexy (Hahn).  
 Gastro-enterostomy (Wölfler).  
 Epidemic nature of poliomyelitis discovered by Medin.  
 Plate cultures (Koch).
- 1882—Tubercle bacillus discovered by Koch.  
 Bacillus of glands discovered by Löffler.  
 Cell division studied by Flemming.  
 Improved Cæsarean section (Sänger).  
 Gall-bladder excised by Langenbuch.
- 1883—Diphtheria bacillus discovered by Klebs.  
 Vaccination against anthrax (Pasteur).  
 Ichthyol introduced by Unna.  
 Tait operation for extra-uterine pregnancy.
- 1884—Cholera bacillus discovered by Koch.  
 Tetanus bacillus discovered by Nicolaier.  
 Crédé silver nitrate instillations.  
 Antipyrine (Knorr).  
 Sulphonal (Baumann).  
 Cocaine used by Koller in eye surgery.
- 1885—O'Dwyer's intubation.  
 Continuity of the germ plasm (Weismann).  
 Test-breakfasts (Ewald and Boas).  
 Nerve-fibers stained by hematoxylin (Weigert).
- 1886—Bacillus coli discovered by Escherich.  
 Steam sterilization (Von Bergmann).  
 Pathology of appendicitis described by Fitz.  
 Acromegaly connected with the pituitary body (Marie).  
 Salol (Marcel von Nencki).  
 Sterilized milk for infants (Soxhlet).  
 Acetanilide (Cahn and Hepp).
- 1887—Bacillus of Malta fever discovered by Bruce.  
 Meningococcus discovered by Weichselbaum.  
 High frequency currents (D'Arsonval).  
 Hysterorrhaphy (Howard Kelly).
- Operation on the spinal cord (Gowers and Horsley).  
 Sloane Maternity Hospital opened.
- 1888—Institut Pasteur founded.  
 Toxins of diphtheria studied by Roux and Yersin.  
 Bactericidal powers of blood serum discovered by Nuttall.
- 1889—Johns Hopkins Hospital opened.  
 Alexins discovered by Buchner.  
 Experimental pancreatic diabetes produced by Von Mering and Minkowski.  
 Infectious Diseases Notification Act (England).  
 Antitoxins discovered by Behring.
- 1890—Imperial Institute of Experimental Medicine founded at St. Petersburg.  
 Diphtheria treated with antitoxin by Behring.  
 Tuberculin introduced by Koch.  
 Infectious Diseases Prevention Act (England).  
 Non-fatigability of nerve demonstrated by Bowditch.  
 Neuroglia stained with methyl violet (Weigert).
- 1891—Institute for Infectious Diseases opened at Berlin under Koch.  
 Lister Institute for Preventive Medicine founded.  
 Neuron theory (Waldeyer).  
 Lumbar puncture (Quincke).
- 1892—Hygienic Institute at Hamburg opened.  
 Incorporation Wistar Institute of Anatomy and Biology.  
 Ligation subclavian artery (Halsted).  
 Pentose discovered by Kossel and Neumann.
- 1893—Röntgen discovers x-rays.  
 Transmission of parasitic diseases by arthropoda discovered by Smith and Kilbourne.  
 Paracolon and paratyphoid bacilli discovered by Gilbert.  
 Finsen light.  
 International Cholera Conference Dresden.
- 1894—Plague bacillus discovered by Kitasato and Yersin.  
 Direct laryngoscopy (Kirstein).  
 Infiltration anesthesia (Schleich).
- 1895—Bacteriolysis discovered by Pfeiffer.  
 Nobel prizes introduced.  
 Anatomical nomenclature reformed by His.
- 1896—Bacterial agglutination discovered by Gruber.  
 Circular anastomosis blood-vessels (Murphy).  
 Biological purification sewage (Dibdin and Schweder).  
 Agglutination test typhoid (Widal and Sicard).
- 1897—Dysentery bacillus discovered by Shiga.  
 Synthesis of caffeine, theobromine, xanthin, guanin and adenin (Fischer).  
 Bacterial hemolysis discovered by Bordet.
- 1898—Institute for Experimental Therapy established at Frankfurt.  
 Direct bronchoscopy (Killian).  
 Filterable viruses studied by Löffler and Frosch.  
 Curies discover radium.  
 Heroine (Dreser).  
 Purin nucleus of uric acid compounds isolated by Fischer.  
 Transmission of hook-worm infection demonstrated by Looss.  
 Bovine and human tubercle bacilli differentiated by Smith.
- 1899—Mosquito transmission of yellow fever established by Reed and Carroll.  
 Chemical activation of sea urchin egg by Loeb.



- Ehrlich's Institute for Experimental Therapy founded (Frankfort).  
 Liverpool and London schools of tropical medicine founded.
- 1900—Paraffin injections (Gersuny).  
 Tonometer (Gärtner).  
 Cytodiagnosis (Widal and Ravaut).  
 Radical operation uterine cancer (Wertheim).
- 1901—Precipitin test for blood stains (Uhlenhuth).  
 Parasite of sleeping sickness discovered by Dutton and Ford.  
 Erepsin discovered by Cohnheim.  
 Adrenalin (Takamine).  
 Rockefeller Institute for Medical Research opened.  
 Instituto Oswaldo Cruz opened at Rio de Janeiro.  
 "Biometrika" founded by Galton, Pearson and Weldon.
- 1902—Methods of vascular anastomosis and transplantation of tissues (Carrel).  
 Site of Asclepeion discovered at Cos (Herzog).  
 Carnegie Institution of Washington founded.  
 Imperial Cancer Research Fund founded (England).
- 1903—Metchnikoff inoculates higher apes with syphilis.  
 Veronal (Fischer and von Mering).  
 Artificial hyperemia (Bier).  
 String galvanometer (Einthoven).  
 That sleeping sickness is transmitted by tsetse fly demonstrated by Bruce.  
 Henry Phipps Institute for Tuberculosis opened.
- 1904—Respiration calorimeter (Atwater).  
 Pneumatic cabinet for chest surgery (Sauerbruch).
- 1905—Parasite of syphilis discovered by Schaudinn.  
 Novocaine (Einhorn).  
 African fever studied by Koch.  
 Institut für Geschichte der Medizin (Leipzig) founded under Sudhoff.  
 Bacillus of whooping-cough discovered by Bordet and Gengou.
- 1906—Rudolf Virchow Hospital opened at Berlin.  
 Bárány develops theory of vestibular nystagmus.  
 Brussels School of Tropical Medicine founded.  
 Nutrition Laboratory of Carnegie Institution founded (Boston).  
 Food and Drugs Act (U. S.).
- 1907—Sero-diagnosis syphilis (Wassermann).  
 Cutaneous reaction tuberculosis (Von Pirquet).  
 Conjunctival reactions tuberculosis (Calmette and Wolff-Eisner).  
 Royal Society Medicine founded (London).
- 1908—Sleeping Sickness Bureau founded (London).  
 Royal Army Medical College opened at Millbank.
- 1909—Manila University founded.  
 Salvarsan (Ehrlich).  
 Improved Wassermann reaction (Noguchi).
- 1910—Harrison demonstrates nerve-fiber outgrowth extravitally.  
 Ultraviolet sterilization of water (Henri).  
 Experimental production of poliomyelitis (Flexner).
- 1911—Extravital culture and rejuvenation of tissues (Carrel).  
 Luetin reaction (Noguchi).  
 Dyspituitarism described by Cushing.  
 Optical researches of Gullstrand (Nobel prize).  
 Transmission of sarcoma by means of a filterable virus (Rous).
- 1912—Malarial plasmodia cultivated in vitro by Bass.
- 1913—Abderhalden ferment reaction for diagnosis of pregnancy and dementia præcox.  
 U. S. Supreme Court denies so-called rights of individuals when inimical to public welfare.  
 Phipps Psychiatric Clinic opened (Baltimore).  
 International Medical Congress (London).
- 1914—Psychoanalysis (Freud) engaging attention and modifying old conceptions.
- 1915—Endocrinology crystallizing rapidly.
- 1916—Medical Kultur rampant; palliative social legislation; preparation of the profession for Prussianization.

### "Nature as an Artist and Physician."

Commenting upon your article in the October number of the *MEDICAL TIMES*, "Nature as an Artist and Physician," I would say, Nature would be a poor artist if she pulled off the same stunt every day. Nothing is more disgusting to the thinker than constant sameness. The most beautiful weather grows monotonous after a few days and everybody cries for a change. The moving picture catches the people only because of its constant changes. And if all consumptives could be cured new worlds would have to be created to accommodate the people. I hate to see the good and beautiful transformed into the diseased, deformed and dead, but such must necessarily follow if this old world is to be the dwelling place of man. If you would be happy count your blessings and leave the disasters for the other fellow to enumerate.

W. P. HOWLE, M. D.

Charleston, Mo.

## The Physician's Library

**Practical Therapeutics.** By Hobart Amory Hare, M. D., Professor in Jefferson Medical College. 16th edition; cloth, 1,009 pages. Illustrated. Philadelphia and New York: Lea & Febiger, 1916.

It would be hard to practise medicine without having this time tried book at hand. For over 20 years it has been a constant companion and each succeeding issue has made it more and more indispensable. Not only does the book carefully consider drugs and their application in diseases, but it gives sage advice as to the treatment of disease by remedial measures other than drugs, as by serums, cold and heat, hydrotherapy, counter-irritation, etc. It also discusses individual diseases and their treatment. Viewed from every angle it is not too much to say that Hare's *Therapeutics* is the most valuable work of its kind in the English language.

**Applied Immunology.** By B. A. Thomas, M. D., of the Philadelphia Polyclinic, and R. H. Ivy M. D., of the University of Pennsylvania. 2nd edition; cloth. 364 pages. \$4.00 net. Philadelphia and London: J. B. Lippincott Co., 1916.

Not long ago we reviewed the first edition of this interesting volume. The second appearance, made necessary by heavy sales, shows the demand on the part of the profession for a deeper knowledge of serology. This book was planned for popular professional use and it apparently has succeeded in filling the time honored "long felt want."

The authors confine themselves to a discussion of biological prophylaxis, diagnosis and therapy and to the application of serum therapy in medicine. Blood transfusion, organotherapy and salvarsan administration are discussed at length in the appendix.

**Pulmonary Tuberculosis.** By Maurice Fishberg, M. D., Clinical Professor of Tuberculosis, New York University. Cloth, 639 pages, illustrated. \$5.00 net. Philadelphia and New York: Lea & Febiger, 1916.

The author sets forth these results of his experience with tuberculosis: 1. "Incipient" tuberculosis does not always mean curable tuberculosis, and "advanced" disease does not always indicate a hopeless outlook. 2. Institutional treatment is not the only effective method of handling the disease. 3. Careful home treatment is productive of practically the same immediate and ultimate results as institutional treatment and is less costly.

Fishberg produces a wealth of knowledge of the disease which will prove of distinct value. He decries the tubercular patient who spits indiscriminately, differentiates between tuberculosis and phthisis, paints a living picture of the clinical symptoms and lays down the most effective lines of treatment. Many illustrations enhance the value of the text.

**Blood-Pressure: Its Clinical Applications.** By George W. Norris, M.D., Assistant Professor of Medicine in the University of Pennsylvania. Second Edition. Cloth, 424 pages, with 102 engravings. \$3.00 net. Philadelphia and New York: Lea & Febiger, 1916.

The second edition has been brought up to date, and as a result we have as clear an exposition of this important subject as has been presented to the profession. Not only is blood pressure in various conditions described, but instrumental estimation is accurately set forth with descriptions of the different instruments. The book is one which will appeal to the practitioner as most practical.

**Mentally Deficient Children.** By G. E. Shuttleworth, M.D., and W. A. Potts, M.D., of England. Cloth, 284 pages, illustrated. \$2.50 net. Philadelphia: P. Blakiston's Son & Co., 1916.

The authors set forth in some detail rules for the treatment and training of defective children. They are urgent advocates of industrial and moral training as a part of the curriculum and demonstrate that by the careful carrying out of a definite line of treatment in England a large percentage of the older patients were able to support themselves. Much valuable information is set forth in this monograph.

**Progressive Medicine.** Edited by Hobart A. Hare, M. D., of Jefferson medical College. Vol. XIX, No. 3. Philadelphia and New York: Lea & Febiger, 1916.

This number, as usual, contains comprehensive reviews. The subjects and authors are: "Diseases of the Thorax and Its Viscera, Including the Heart, Lungs and Blood Vessels," by William Ewart; "Dermatology and Syphilis," by William S. Gottheil; "Obstetrics," by Edward P. Davis, and "Diseases of the Nervous System," by William G. Spiller.

**First Principles of Electricity.** By J. E. Homans. Cloth. 248 pages. New York: Sully & Kleinteich, 1916.

Physicians interested in electricity will find this book of value.

**Homans' Automobile Handbook.** By J. E. Homans. Cloth. 248 pages, illustrated. Net, \$1.00; New York: Sully & Kleinteich, 1916.

This handbook contains the principles of construction and operation of the modern automobile and makes clear many points that seem vague. To the owner who would know his engine and the intricacies thereof we commend this volume as a *vade mecum*.

**International Clinics.** Edited by H. R. M. Landis, M. D. Vol. II, 26th series. Cloth, 312 pages. Philadelphia and London, J. B. Lippincott Co., 1916.

Treatment, medicine, psychiatry, obstetrics, public health and surgery are the subjects discussed in this number, and twenty-four articles cover the field. The different papers are well presented.

**Diagnosis and Treatment of Surgical Diseases of the Spinal Cord and Its Membranes.** By Charles A. Elsberg, M. D., Professor of Clinical Surgery in New York University. Cloth, 330 pages, with 158 illustrations. \$5.00 net. Philadelphia and London: W. B. Saunders Company, 1916.

Thoroughness of detail is stamped upon the pages of this treatise. It is divided into *partes tres*. The first discusses symptomatology; the second, operations, and the third, surgical diseases. The subject is covered with a nicety not often observed in books relating to special branches and lives up to its name by treating only the diagnosis and treatment with only scant reference to neurology and general surgery.

### Uveitis.

Referring to a former article in which he reported a case of malignant uveitis treated with thyroid extract, James Bordley, Jr., Baltimore, offers a supplementary article in which he reports two additional cases thus treated. In every one of his five cases previously cited there was a focus of infection outside of the eye. It must be remembered that finding a focus of infection does not prove its causative relation. Nor should we forget that malignant uveitis when once established is a disease and not merely a symptom. He is prepared to believe that the use of thyroid glands is logical as a defense against the disease. Both his patients in the cases reported were treated with iodothyron, with rapid improvement in the symptoms.—(*J. A. M. A.*)

## Pediatrics

### Vaccinotherapy in Gonococcic Infections in Small Girls.

A. Garrau, writing in *Revista Med. del Uruguay*, tells of the use of the gonococcus vaccine prepared by Nicolle and Blaizot in treating fifteen girls in an orphan asylum. The condition of these children, ranging in age from five to twelve years had not been improved by any previous treatment. All presented local irritation and discharge of pus from vagina, but no symptoms of abdominal complications. From  $\frac{1}{2}$  to 1 c.c. was administered hypodermically in some cases with a decided reaction. At first the discharge was increased, but subsequently much improved. The number of doses given ranged from two to eight, at intervals of four days at first, gradually increased to a month. In 2 cases only the gonococcus disappeared entirely, the patients being pronounced cured. The remaining 13 children continued to improve until the injections were discontinued, on account of too pronounced reaction after each dose.—(*Arch. Ped.*, Oct., 1916.)

### Technic of Circumcision.

Oswald Joerg, of Brooklyn says that in preparing for the circumcision he washes the parts thoroughly with hot soapsuds and cleans the preputial sac by injections of one in 2,000 solution of mercury cyanide. The penis is passed through a small opening made in the centre of a sterilized towel and the latter is spread out and fixed to the patient's clothing.

He injects with a hypodermic syringe a solution of novocaine *into*, not beneath the skin and mucous membrane at the place where the incisions have to be made, i. e., around the whole foreskin at the height of the sulcus and near the opening. The solution consists of:

R Novocaini .....	grain $\frac{1}{2}$
Sodii Chloridi .....	grains ii
Solutions Adrenalini (1:1,100) .....	℥viii
Aquæ .....	3ij
M. Ft. solutio.	

The injections cause a very light swelling, but never so much as to interfere with the operation.

He then pulls the foreskin forward more, if it is very long, less, if it is shorter, with the fingers of one hand or with a pair of forceps. With the other hand he applies a circumcision clamp obliquely parallel to the corona glandis between the fingers or the forceps and the glans penis, taking care that the latter is not caught. With a very sharp scalpel he cuts off the end of the prepuce which is in front of the clamp.

In most cases the outer membrane (the skin) retracts more than the inner layer (the mucosa). If possible he turns the latter up to adapt it to the former. Sometimes if the mucosa cannot be moved upward it is necessary to make one or two short incisions into it at the dorsum or near the frenulum with bistoury or scissors, or, if there are adhesions to the glans, to loosen them with a probe. If there should be any redundant mucous membrane near the preputial orifice, it has to be clipped away. When the prepuce is stripped off the glans, the coronal sulcus is often found covered with smegma.

There may be four bleeding points, a dorsal, two lateral, and a frenal. Any such artery is to be clamped or tied with fine catgut. If the bleeding is stopped he introduces as many silk sutures as necessary, sometimes only two, sometimes as many as five, about an eighth of an inch from the surface of incision. In some cases the adaptation is so good that no sutures are needed. As a dressing use sterile gauze with the unguentum acidi borici U. S. Ph., and a small wound bandage, leaving free the orificium urethrae. The penis is held up by a sterile T bandage or a suspensory bandage to which a piece of cloth is fastened on both sides. The patient is allowed to go about.

The sutures are taken out about the fifth day and the bandage is removed after a week.—(*N. Y. Med. J.*, Oct. 7, 1916.)

### Defective Teeth in Children.

A recent investigation made by the United States Public Health Service in connection with studies of rural school children showed that 49.3 per cent had defective teeth, 21.1 per cent had two or more missing teeth, and only 16.9 per cent had had dental attention. Over 14 per cent never use a tooth brush, 58.2 per cent used one occasionally and only 27.4 per cent used one daily. Defective teeth reduce physical efficiency. Dirty, suppurating, snaggle-toothed mouths are responsible for many cases of heart disease, rheumatism, and

(Continued on p. 20.)



# "ROCHE"

To the Medical Profession :

New York 1916

We would consider as a favor information of any case in which a higher price than the one current before the war is being charged for Digalen, Thiocol Tablets, Thiocol Syrup, or Pantopon Roche (Pantopium Hydrochloricum).

Even of the few "Roche" specialties which have been temporarily exhausted we have sold every package to the last at exactly the same price as that current before the war, trusting that by so doing we would maintain the good-will of the physicians in the products until they again become available.

We ask for your co-operation in carrying through our policy of opposing every attempt at speculation at the expense of physician and patient.

The Hoffmann-La Roche Chemical Works.

## INFANT FEEDING

In extreme emaciation, which is a characteristic symptom of conditions commonly known as

### Malnutrition-Marasmus-Atrophy

it is difficult to give fat in sufficient amounts to satisfy the nutritive needs; therefore, it is necessary to meet this emergency by substituting some other energy-giving food element. Carbohydrates in the form of maltose and dextrins in the proportion that is found in

### MELLIN'S FOOD

are especially adapted to the requirements, for such carbohydrates are readily assimilated and at once furnish heat and energy so greatly needed by these poorly nourished infants.

The method of preparing the diet and suggestions for meeting individual conditions sent to physicians upon request.

MELLIN'S FOOD COMPANY,

BOSTON, MASS.

(Continued from p. 380.)

other chronic affections. The children are not responsible for the neglected state of their teeth. The ignorant and careless parent is to blame for this condition—a condition which hampers mental and physical growth and puts a permanent handicap on our future citizens. School teachers are doing much in inculcating habits of personal cleanliness on the rural school child but this will fail of the highest accomplishment unless parents co-operate heartily and continuously.

#### Poliomyelitis.

J. W. Nuzum and M. Herzog, Chicago, using material obtained from necropsies in the Cook County Hospital, from typical cases of poliomyelitis and from the cerebrospinal fluid during life, have obtained a gram-positive micrococcus which grows well on ascities dextrose broth to which a sterile piece of rabbit's kidney has been added, but always better aerobically than anaerobically. Cultures of this organism injected into monkeys produced typical, clinical and pathologic poliomyelitis. Definite flaccid paralysis has been produced in dogs and in young rabbits. However, there was a variation in the microscopic picture in rabbits, though many of the changes shown in the disease in man and monkeys are also present in the central nervous system of the rabbit. Anaerobic cultures in fluid mediums will pass through a Berkefeld filter, and inoculations of the filtrate into suitable mediums produced growth of the larger form so small that it can pass through a Berkefeld filter. We form of the organism seen in aerobic cultures. This would indicate that the organism under anaerobic conditions assumes a must remember that this gram-positive coccus may carry a real ultramicroscopic invisible virus. In tissues from the central nervous system of poliomyelitic material preserved in 50 per cent. sterile glycerin, the same micrococcus was alive after a period of thirty-five days and could be cultivated in pure culture in suitable mediums.—(J. A. M. A.)

Syphilis is more productive of cardiac disease than is generally supposed, and it is frequently associated with syphilitic affections of nerve, bone, brain and aorta.

In acute pelvic suppuration, when the indications for interference are present, the operation of choice should be a simple incision and ample drainage.

#### Starch and Table Salt Sold as Neosalvarsan.

The recent indictment by the Federal Grand Jury in Newark, N. J., of "Dr." Jean F. Strandgaard, of Toronto, Canada, and George F. Hardacre, of Toronto, and a steward on the steamship "United States," has revealed to Chief Inspector E. R. Norwood, of the Customs Service in New York, what he believes to be a widespread conspiracy to defraud the Government out of customs revenue by smuggling salvarsan and neosalvarsan into the United States.

A most serious feature of this matter is the discovery by Inspector Norwood that these men also had in their possession a large quantity of spurious neosalvarsan. Upon analysis by the Government experts, the contents proved to be starch in the majority of the ampules and stained table salt in the others.

A further investigation showed that during July, 1916, Strandgaard had 15,000 ampules made in Jersey City, which upon his instructions were filled by the glass blower with either starch or salt. A remarkable coincidence is that during August and September, and as recently as the time Strandgaard was arrested in New York, physicians and drug stores all over the Middle West and the East were approached by women trying to sell, on the one pretense or another, the frauds made for Strandgaard. These spurious products were put up in imitation of either the German or particularly the English package, as marketed by the German manufacturers in England before the war, in square pasteboard cartons. They did not appear in round aluminum packages, like the American package. They are very cleverly executed, and their outside appearance even led experienced physicians to be deceived.

The product has been sold in New York, Chicago, Milwaukee, Cincinnati, Peoria, Kalamazoo, Detroit, Terre Haute and Mobile, and other Western and Southern cities, and is undoubtedly still being peddled on account of the great profits accruing to the saleswomen.

There is no need to call the attention of physicians to the dangers connected with the use of such frauds. In view of the serious and possibly fatal results which would follow the administration of these fraudulent salvarsans, it is incumbent upon medical men who have any information about the distribution or sale of these frauds to communicate with Chief Inspector E. R. Norwood, U. S. Customs House, New York, at their earliest opportunity, or, in case of emergency, with the local police authorities.

## We ask only two questions

before we buy any drug or chemical; the first is  
"Is it **good** enough?"

And we ask that of our histologist, our analytical chemist, our drug-miller and several other expert judges of drug values on our laboratory staff.

If all or any of them say 'no'—we reject it.

If all of them say 'yes'—and each of them knows that to measure up to our inflexible standard it must be strictly 'A 1'—then, and then only we ask the second question—"what is the price?"

**Quality always comes first.**

## SHARP & DOHME

since 1860

"Quality Products"



## A Powerful Nutritive Tonic

The great progress that has been made in scientific knowledge concerning bodily nutrition—and physiologic chemistry in general—has emphasized the great importance of certain enzymes and nutrients in maintaining nutritional processes at their highest efficiency.

Especially has attention been directed to diastasic ferments and carbohydrates, for it is increasingly evident that these play a very prominent part in a large proportion of nutritional derangements.

As facts have accumulated, and the notable efficacy of diastase and carefully selected carbohydrates in the management of many forms of malnutrition has been conclusively demonstrated, the use of malt extract has rapidly extended.

The need for malt extract of the highest quality and diastasic efficiency has very naturally led many physicians to turn to

### **TROMMER** **DIASTASIC MALT EXTRACT**

Honestly made from the best barley malt, for nearly half a century this pioneer extract of malt has been widely and successfully employed by careful, discriminating physicians who have recognized its remarkable tonic and reconstructive properties. Exceptionally rich in natural diastase, maltose and other nutrient extractives, it has been used with conspicuous benefits in **malnutrition, diabetes, incipient tuberculosis as a substitute for cod liver oil, in infant feeding and in all forms of bodily decline where carbohydrate metabolism is defective or impaired.**

In starch indigestion Trommer Extract of Malt, through its influence on the digestive functions, can be relied upon to produce substantial and lasting results. To countless physicians, therefore, Trommer Extract of Malt is not only the ideal corrective of starch indigestion, but also the most dependable and satisfactory nutritive tonic and reconstructive at their command.

*Useful and interesting literature on request*

**THE TROMMER CO., - Fremont, Ohio**

## LISTERINE

the well-proven and time-tried antiseptic solution, has been prescribed by the Medical Profession with very satisfactory results for 35 years in the treatment of Respiratory Diseases incident to Fall and Winter climatic conditions.

## LISTERINE

one part, hot water three parts, is a useful gargle for sore throat. In mucous catarrhs, Listerine, suitably diluted, is most effectively applied by means of the spray apparatus or douche.

## LISTERINE

is not only a vehicle for specially indicated alteratives, resolvents and astringents, but is itself an efficient, non-irritating antiseptic that is safe, pleasing to the taste and promptly effective.

A treatise on Respiratory Diseases will be forwarded members of the medical profession on request.

**LAMBERT PHARMACAL COMPANY**  
**TWENTY-FIRST AND LOCUST STREETS, - - - ST. LOUIS, MO.**

### Heroin Addiction.

At a meeting of the Committee on Drug Addiction of the National Committee on Prisons, discussion revealed that heroin is the favorite drug among young addicts and those of the first decades of life. In view of this fact the committee passed resolutions to the effect that since heroin is not a drug of sufficient value to preclude its being replaced by other drugs or measures that do not develop and maintain vice and crime, it was recommended that Federal legislation be adopted to prevent the importation, manufacture and sale of this dangerous habit-forming drug in the United States.

The Committee on Drug Addiction consists of Dr. Simon Baruch, chairman; Drs. Samuel W. Lambert, Frederick Peterson, Dr. Frederick Tilney and ex-Surgeon General Charles F. Stokes of the Navy.

### An American Medical School on German Lines.

The General Education Board and the Rockefeller Foundation have jointly appropriated \$2,000,000, which will be added to money and property worth \$9,000,000, for the founding of a medical department in connection with the University of Chicago, which is expected to make it the greatest medicine school in the United States.

Starting with an endowment of \$11,000,000, the largest possessed by any medical school in the country, the Medical Department of the University of Chicago will be conducted by a staff of full-time professors and assistants. The most eminent men in the various fields of medicine will be invited to take places on the staff.

The purpose of the endowment is to create in America a school which will make it unnecessary for advanced students, or for physicians, to study abroad. It is expected eventually to build up an institution such as exists at present nowhere in America, and is to be found at present only in Berlin and Vienna.

The various items included in the endowment of the new school are the \$2,000,000 from the two Rockefeller organizations, \$2,000,000 already set aside for the purpose by Chicago University, a further sum of \$3,300,000 which is to be raised by the university, and the plant and property of the Presbyterian Hospital in Chicago, valued at more than \$3,000,000, which is to be placed under the control of the Medical Department of the University of Chicago.

The Rush Medical College, founded seventy-five years ago, will go out of existence when the new department of the University of Chicago opens its doors. The proposed medical school will be erected on the midway plaisance and be part of the University of Chicago plant. The staff of Rush and the staff of the Presbyterian Hospital will all resign. The selection of the new staff will rest solely with the Medical Department of University of Chicago. It will consist of ten or more full-time professors and forty assistants.

### New York City is Seeking Physicians.

In a city such as New York where so many unique and important undertakings are in order, it is no wonder that some of the most interesting and important of governmental functions are entirely unknown in so far as the average citizen is concerned. As an example,—how many of the men walking along Nassau street today know that the Health Department conducts an Occupational Clinic at 49 Lafayette street, New York? Furthermore, just how many would recognize what an occupational clinic means?

The fact that the occupational clinic of the Board of Health is the only one of its kind in the world, except for one at Milan, Italy, is something to militate against the charge of gross ignorance on the part of the New Yorker. Much could be written about the work of this important institution wherein skilled medical men are patiently studying the many diseases directly attributable to certain occupations,—and even more could be written of their daily examinations of hundreds of the 200,000 or more food handlers in the city to insure against the transmission of communicable diseases. Does the man or woman dining at any of the many New York hotels and restaurants know that the man or woman serving him has recently received a clean bill of health from the Department of Health? And is he aware that the baker who has prepared his bread and the chef who has cooked his food have also received official permission to work at that particular occupation?

The medical men of the city know of this work and its attractive and unusual fields for research and invaluable experience. As a result, the advertisement by the Municipal Civil Service Commission of an examination for Clinic Physician for part time service will meet with hearty response and result in keen competition for the several vacant positions. The compensation rates proposed by the Board of Estimate and

Apportionment for this position are \$300 to \$600 per annum for not less than six hours per week or \$900 to \$1,140 per annum for not less than eighteen hours per week.

Aside from the experience and education connection with the work, the clinic physician is fitting himself for a new phase of medical practice, that of industrial corporation service. Applications must be filed before December 1.

For further particulars apply to the Municipal Civil Service Commission, Room, 1400, Municipal Building, New York City.

### Effect of Employment on Children.

It is so well recognized that certain occupations may involve serious dangers to young growing persons that most States now have their child labor laws. Massachusetts, which has been a leader in legislation of this character, is now engaged in a systematic effort to collect information that may be of value in determining the need of changes in its present laws and regulations governing the employment of minors. At the request of the Massachusetts Board of Labor and Industries, Assistant Surgeon M. Victor Safford of the U. S. Public Health Service was detailed by the Federal Government to co-operate with the State authorities in a study of the effect of employment in various occupations on the health and physical development of children now permitted by law to work therein. A report of this study with respect to the cotton manufacturing industry of Massachusetts has just been published by the Federal Government as Public Health Bulletin No. 78, entitled "Influence of Occupation on Health During Adolescence."

The physical condition of over 600 boys between the ages of 14 and 18 employed in this industry in different parts of the State received careful study. It was brought out that in Massachusetts boys between these ages for the most part do not remain long in the cotton mills. This fact and the strict regulations of the State governing the employment of minors may not make some of the conclusions reached in this local investigation equally true elsewhere, but among the facts disclosed the following may be mentioned.

A considerable proportion of the younger boys and also of those over sixteen were undersized and physically undeveloped for their ages, while those between fifteen and sixteen averaged larger than other classes of boys of their age with which comparisons were made. This fact is explained by the accumulation in the mills of strong boys waiting to reach the age of sixteen to go into permanent "full time" occupations. The presence of a noteworthy proportion of undersized boys is not ascribed to the effects of the occupation, but to the fact that the cotton mill offers one of the few chances of employment for undersized boys. Evidence of injurious effects of their work or working conditions, even of the temperature and humidity of the mills, on normal boys was seldom found, although further investigation of possible effects of atmospheric conditions is recommended. Probably as a result of the State regulations relative to the issuance of employment certificates comparatively few cases of dangerous diseases were discovered. There was, however, a wide variety of defective conditions disclosed by the investigation, many of them of such a character as to impair seriously the future health and economic usefulness of the individuals concerned if not remedied.

### Controlling the Nervous Element in Female Diseases

Utero-ovarian congestion, traceable to extreme irritability of the local nervous mechanism, invariably requires appropriate antispasmodic treatment. Among the sedatives that have been found serviceable, none has proven more effective than Peacock's Bromides. Efficient, reliable and remarkably free from any unpleasant effects, this combination of bromide salts is of exceptional utility in female disorders in which the nervous element is prominent. In these conditions, it can be used with every confidence, not alone in its therapeutic efficiency, but in its notable freedom from gastric disturbance. A gratifying feature of Peacock's Bromides is its capacity to relieve pain and discomfort without inducing a drug habit.

### Sluggish, Unloaded Bowels.

When the bowels are sluggish and overloaded, the whole system is usually depressed and deranged by the retention of toxic waste material. It becomes necessary to increase the activity of the bowels and promote regular evacuation of their contents. There is no remedy that will give more prompt and satisfactory results than Prunoids. One to three at bedtime will afford prompt relief—without the usual cathartic discomfort—and rapidly restore functional regularity of the bowels. As one prominent physician has said "I use Prunoids because it *regulates* as well as *evacuates* the bowels." Samples will be sent on request to the Sultan Drug Co., St. Louis, Mo.



## Hardened Catgut

It is absolutely impossible to prepare catgut ligatures whose definite resistance can be expressed in exact terms, such as "days." Patients and tissues do not react alike.

Our research has shown and later experience has proven conclusively that two degrees of hardness can be produced. We believe that we have given them fair and safe names in the terms "medium-hard chromic" and "extra-hard chromic."

Under ordinary conditions in muscle our medium-hard chromic catgut, No. 2, will retain its integrity from ten to twenty days.

The extra-hard chromic catgut will retain its integrity from twenty to thirty days, or perhaps slightly longer.



Chromicizing the intestinal tissue before twisting it.

which is furnished in tubes of white clear glass. Just a precaution against possible mistakes in the operating room.

One great advantage of Johnson & Johnson hardened catgut is that the chromicizing operation is carried out while the lamb's intestine is in a condition of soft, loose tissue-like strips, as it exists just before twisting to make the cord.

The Johnson & Johnson catgut ligature is a perfect cord, made of healthy, normal animal tissue; sterilized, aseptic and unchanged in character; absorbable without reaction or disturbance of the wound-healing process. The surgeon can use it with complete confidence.

Send for our "Handbook of Ligatures."

*Johnson & Johnson*

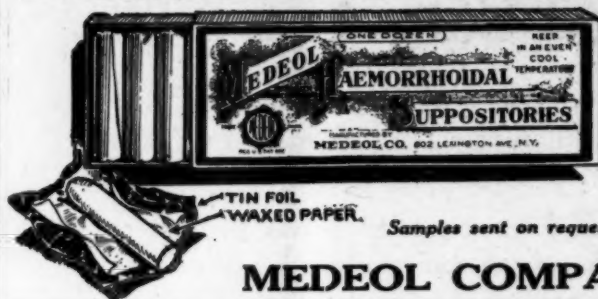
New Brunswick, N. J.

In most cases the medium-hard is sufficient, but in serous or mucous membranes the extra-hard is generally used.

We strongly urge the use of two small strands in place of one large strand wherever possible, so as to avoid large knots which remain in the wound and which may later cause irritation.

Our tubes containing chromic catgut are made of amber-colored glass, to distinguish them from the plain gut,

# MEDEOL SUPPOSITORIES



An Innocuous, Non-Irritant, Efficient Antiphlogistic for use in all inflammatory diseases of the rectum, anus and vagina, especially in

## HEMORRHOIDS

### Composition:

Medeol (Bismuth Iodoresorcinate).....	0.25 gm.
Zinc Oxid.....	0.5 gm.
Acid Tannic.....	0.15 gm.
Balsam Peru.....	0.16 gm.
Cocoa Butter and Wax q. s. ft. suppos. No. 1.	

Samples sent on request

**MEDEOL COMPANY, 802 Lexington Ave., New York**

### Patronizing an American Spa.

The European war, which has so profoundly affected our industries, has had a considerable influence in increasing the patronage of American health resorts. Many Americans who usually go to foreign spas have visited home institutions instead. Furthermore, numerous residents of other neutral countries have come to the United States in search of health who would in other conditions have gone to Carlsbad, Homburg or the hundred other health headquarters of Europe. This is particularly true of wealthy residents of Central and South America. In the last year the Battle Creek Sanitarium has had about 200 patients from abroad. The number will probably increase, for in the last three months the institution has had letters of inquiry from prospective visitors residing in the following lands: Cuba, Caiman Islands, Mexico, San Salvador, British Guiana, Venezuela, Colombia, the Argentine, Uruguay, Peru, Honduras, Italy, Switzerland, Russia, England, Germany, India, Japan, the Belgian Congo and Australia.

### Hard Dry Feces.

Interol is suggested as a means of overcoming this difficulty—and a hard dry fecal mass is indeed a difficulty—because Interol has several points in its favor.

It becomes part of the intestinal contents as they emerge from the cecum into the colon. Under its influence, feces cannot become hard and dry. The colon may absorb all the water it wants, but Interol remains with the mass all through its colonic and rectal journey, finally lubricating it past the sphincter ani.

Straining at stool no longer is necessary, and therein lies the value of Interol not only as a fecal softener and lubricant, but as a prophylactic measure in the prevention of the many physical sequelæ of straining at stool, including hernia, hemorrhoids and prolapse (rectal and uterine).\*

\*Four-page circular on "Hard Dry Feces" sent on request. Also four-page circular on "Straining at Stool." Or Interol-lubrication booklet. Van Horn & Sawtell, 15-17 East 40th Street, New York City.

### A Good Book for Physicians.

The Physicians' Descriptive Catalog, which Johnson & Johnson of New Brunswick, N. J., offer to send free to physicians, contains 120 pages of terse descriptions and accurate illustrations of the products of Johnson & Johnson and their uses. The aim of the catalog is to assist physicians in making their selection of materials.

Johnson & Johnson are not only manufacturers, but scientific investigators, having contributed largely to the advancement of the medical and surgical profession. In the laboratories of Johnson & Johnson there is at all times a competent force of laboratory workers who devote their time to experimental investigations in chemistry, surgery, bacteriology and allied sciences. This catalog may be accepted as an authority upon the subjects it covers.

### High Blood Pressure.

Pulvoids Natrium Compound (High Tension, Dr. M. C. Thrush), a product of the laboratories of the Drug Products Co., Inc., New York City, has proven under extensive clinical observation an active and efficient agent in reducing high blood pressure.

A new and valuable treatise on high blood pressure, its significance and suggestions for its treatment, will be mailed to physicians upon request by the Drug Products Co., Inc.

### Children's Teeth.

The care of children's teeth is the subject of a paper by T. C. McCleave, Oakland, Calif. While more or less dental inspection is done in the schools of various sized communities, in most places no attention is paid to it. Ignorance, he thinks, is the great obstacle and cause for this neglect. The common notion that the first set of teeth is only temporary is the cause; the permanent teeth will be crooked, of course, but it is considered as of no consequence, as they can be corrected later. Some of the most important developmental defects start in the bones of the jaws and face, interfering with the functions of mastication, respiration and speech and the cosmetic appearance of the face. The cause of malocclusion may originate in fetal life; but in other instances a normal demition may be ruined by neglect or misuse. Neglect of oral hygiene leads to early decay and loss of teeth with abnormalities of growth which displace the coming of permanent teeth. Nasal deformities, adenoids and enlarged tonsils may induce changes in the dental arch and certain systemic disorders, such as syphilis, rickets, etc., add to the perils. Beauty is said to be skin deep, but it is bone deep as well, and mental and physical impairment may follow.

Two of the commonest diseases are dental caries and pyorrhea. The diet of children has an important relation to the condition of the teeth, as McCleave points out, and should be cared for in this connection. He reviews the various infections and other conditions, and notices the attention that has been lately given to the subject of focal dental infections causing general disease. Co-operation between the dental and medical profession must be fostered, and the public should be educated in regard to this matter. Parents must be made to appreciate the importance of conserving the first teeth and of correcting orthodontic deformities early. A children's clinic which lacks a dental department as a necessary part of its organization is defective.—(J. A. M. A.)

### Venodine.

Of the various methods of treating pulmonary diseases and la grippe, direct medication—the intravenous method—has proved perhaps the most efficient in promptness of results attained.

Venodine is perhaps the most widely used remedy manufactured for the treatment of pulmonary diseases by the direct medication process. Iodin is the principal constituent of Venodine. With the iodine is combined creosote and guaiaacol. The use of Venodine, intravenously, increases the formation of red blood cells. Venodine is sold only in original ampoules ready for immediate intravenous injection. The 64-page book "Direct Medication," issued by The Intravenous Products Company, which fully describes intravenous medication, will be sent to physicians free. Samples will also be sent on request. Address the main office at Denver, Col., or any of their branches.

### Maternity Home

#### FARM

On auto road between Dunellen and Bound Brook, N. J., on Jersey Central Road, twenty-six miles from N. Y. One hundred acres secluded. No men patients admitted. Investigate.

C. HENDRICK, M.D.

### Silver Springs Sanitarium

#### DUNELLEN, N. J.

Phone, 1299 R DUNELLEN



# Appetite and Digestibility

No appetite means a slow digestion. What does not "make the mouth water" will not make the gastric juices flow easily. Food must be tempting.

Biscuits, muffins, cake, etc., made with

## ROYAL Baking Powder

are both delicious and digestible because of their lightness, due to the strong leavening action of the powder.

They are, moreover, healthful because Royal Baking Powder is made from cream of tartar and adds to food the same wholesome qualities that exist in ripe grapes, from which cream of tartar is derived.

Food made with Royal Baking Powder possesses excellent keeping qualities and fine flavor, stimulating to the appetite and digestion as well.

***Royal Baking Powder contains no alum***

## THE PHYSICIAN'S PROBLEM

HAS BEEN how to administer Iodin and give the patient its beneficial effects without the distressing results of a bad stomach, a foul breath, a violent coryza and the characteristic Iodid rash

### IODIN

as Iodin, may NOW be given continuously day after day, week after week, month after month, by prescribing

### ORGANIDIN, WAMPOLE

(A COMPOUND OF IODIN WITH AN ORGANIC BASE)

Iodin caught and firmly held by a base which is itself without therapeutic activity

Because Organidin goes through the stomach unchanged, there can be no stomach disturbance, and its Iodin is not rendered inert by forming the characteristic insoluble blue Iodid of Starch. It is promptly eliminated

In ten minutes it is detected in the saliva: in less than half an hour the urine responds readily to Iodin test

It is very soon noted in the perspiration

Dr. Marine in the Journal of Biological Chemistry says the thyroid takes up 18½% of total Iodin ingested

### ORGANIDIN, WAMPOLE

Is supplied in 1-ounce bottles (a three to four weeks' treatment) with medicine-dropper complete

Trade-size package, as sample, sent postpaid to any address on receipt of \$1.00

PREPARED SOLELY BY

**HENRY K. WAMPOLE & CO.**

—INCORPORATED—

MANUFACTURING PHARMACISTS

PHILADELPHIA, U. S. A.

Trade Mark Registered.

**Gluten Flour**

40% GLUTEN

Guaranteed to comply in all respects to standard requirements of U. S. Dept. of Agriculture.

Manufactured by  
**FARWELL & RHINES**  
Watertown, N. Y.



Established 1851.

**THE WALLEASY ARTIFICIAL LEG**

combines all the latest improvements in modern Artificial Limb construction. Our free Art Catalogue contains valuable information relative to points of amputation, care of stump and limbs for children.

**OEO. R. FULLER CO.,** Rochester, N. Y.

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### Need of a National Vitality Commission.

E. E. Rittenhouse believes a National Vitality Commission is needed for these reasons:

1—Our unprecedented prosperity and invention of labor and time-saving devices have developed habits of extravagance, luxury, over-indulgence in both work and physical ease, which have disturbed our race stability.

2—The high-tension element is obviously increasing. Nervous strain and mental stress are constantly adding to low-powered group.

3—An extraordinary increase in sedentary life has occurred.

4—The overfed and underexercised groups are increasing. Result obesity and weak limbs, soft muscles—due to disuse. Easy and early victims of organic disease.

5—Prevalence of defective teeth, diseased gums (largely due to non-use of teeth), impaired vision, baldness, bad posture, flat-foot, constipation, increased by sedentary occupations.

6—A marked increase has occurred in the death rate from diseases of the nervous and digestive systems, heart and arterial systems, kidneys and urinary system—19 per cent. in ten years.

7—There are constantly about 1,500,000 Americans ill with preventable disease.

8—At least 8,500,000 men (of total 28,000,000), age 18 to 60, have evidences of approaching organic disease or already have it in one or more forms.

9—Health and life waste from tuberculosis, typhoid fever and other germ diseases is still excessive; about 350,000 deaths annually.

10—The mortality from cancer is rapidly increasing. Annual deaths about 75,000.

11—Accidental deaths have steadily increased and now number nearly 90,000 annually.

12—Four out of every ten deaths (all causes) are preventable.

13—Two billion dollars is the estimated annual economic waste due to preventable sickness and preventable deaths in the United States.

14—The birth rate is steadily declining—especially among the well-to-do classes, and at least 200,000 babies die every year from preventable disease.

15—There are 9,000,000 unmarried women and 8,000,000 unmarried men in the United States.

16—The divorce rate is increasing. In Chicago one suit is filed for every six marriages licenses issued.

17—Not less than 75 per cent. of school children need attention for physical defects or impairments prejudicial to health.

18—The large number of mental defectives and backward children in our schools presents a serious educational problem.

19—Idiocy and insanity are apparently increasing.

20—An enormous number of people are suffering from drug habits and alcoholism.

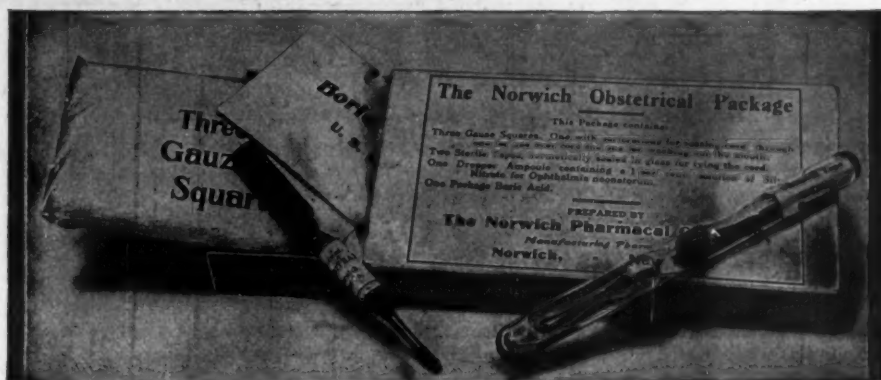
21—Medical men claim that victims of venereal diseases are rapidly increasing.

22—Suicides continue to increase, and have now reached the enormous total of over 15,000 annually. In ten years 42,000 people have taken their lives in 100 cities.

23—America's murder rate is extraordinary. About 80 per million as against 7 to 20 for other nations. But a small number are punished for their crimes.—(*Public Health*, May, 1916.)

Cysts are more common in the cerebellum. Of these there are many varieties: parasitic, dermoid, serous, due to transformation of sanguineous effusion or an area of softening or hemorrhage into a glioma, and cysts due to serous meningitis.





## The Norwich Obstetrical Package

A convenience for bedside use

2 Sterile Tapes in glass, Silver Nitrate Solution in dropper ampoule, 3 Gauze Squares, Boric Acid, etc.

Through your Druggist or direct from our nearest Branch

### The Norwich Pharmacal Company

*Unguentine and Standardized Pharmaceuticals*

Executive Office and Laboratories

Norwich, - New York

NEW YORK

CHICAGO

KANSAS CITY

## PROTECT YOUR HEALTH!

The various contagious diseases that have existed the past year should be sufficient warning to all householders to take special precaution to insure good health.

The constant daily use in the home of a Reliable Disinfectant will prevent the spread of disease germs, and leave a clean, healthy atmosphere.

PLATT'S CHLORIDES has received the approval of the medical profession for more than thirty-six years as the Standard Disinfectant in the sick-room, the doctor's office and the household.

## ***Platt's Chlorides,*** ***The Odorless Disinfectant.***

Sold everywhere in two sizes, 25 and 50c.

WILL NOT STAIN IF DILUTED

Write for sample to **HENRY B. PLATT, 49 Cliff St., N. Y.**

**THREE CHLORIDES (HENRY'S)****LIQUOR FERRISENIC—12 oz. Bottles, Price \$1.00**

Indicated in anemia and bodily weakness especially in the treatment of puny children, convalescing adults or the aged; also for girls at the age of puberty, women at the menopause and wasting diseases and debility.

**TRI-IODIDES (HENRY'S)****LIQUOR SALI-IODIDES—8 oz. Bottle, Price \$1.00**

Valuable in acute or chronic diseases of the bones and joints, rheumatism, gout, syphilitic blood taint, eczema, psoriasis and all dermic disorders in which there is an underlying blood impurity.

**MAIZO-LITHIUM (HENRY'S)****LITHIATED GREEN CORN SILK—8 oz. Bottle, Price \$1.00**

A genito-urinary sedative, eliminant and solvent of uric acid. Recommended in lumbago, kidney pain, cardiac palpitation, diabetis, and kindred diseases where a diuretic is desired.

Write for Descriptive Pamphlets

**HENRY PHARMACAL CO.****ST. LOUIS, MO.**

# The Coward For Weak Arches Shoe

and Ankles, either in the incipient or advanced stages, the Coward Arch Support Shoes will be found of incalculable benefit. The corrective mechanical features embodied in these shoes give immediate relief and assistance in all cases of structural foot weakness, including "turned" ankles, weak ligaments, falling arch and "flat-foot."

Coward Shoes are constructed on approved anatomical principles and provide the needed support, without discomfort to the wearer.

Physicians have found the Coward Remedial Shoes helpful in treating various ailments of Men, Women and Children.

**SOLD NOWHERE ELSE****JAMES S. COWARD****262-274 Greenwich St., New York****(Near Warren Street)****Mail Orders Filled****Send For Catalog**



# SILVOL

**A Powerful Non-Toxic, Non-Irritating Germicide for the Treatment of Infections of Mucous Membranes.**

Contains approximately 20 per cent. of metallic silver. Freely soluble in water; no sediment on standing. Does not coagulate albumin; is not precipitated by proteids or alkalies. Its germicidal power has been conclusively demonstrated clinically. Indicated in the treatment of

Conjunctivitis,  
Corneal Ulcer,  
Trachoma,  
Rhinitis,  
Sinus Infections,

Otitis Media,  
Pharyngitis,  
Tonsillitis,  
Laryngitis,  
Gonorrhea (all stages),

Cystitis,  
Posterior Urethritis,  
Vaginitis,  
Cervical Erosions,  
Endometritis, Etc.

Used in aqueous solutions of 5 to 50 per cent.

**POWDER:** Bottles of one ounce.

**CAPSULES** (6-grain): Bottles of 50.

Contents of two capsules make one-fourth ounce of a 10-per-cent. solution.

♦ ♦ ♦

**SILVOL OINTMENT** (5 per cent.), for application to regions where the use of an aqueous antiseptic solution is not feasible. Small and large collapsible tubes with elongated nozzle.

LITERATURE WITH EACH PACKAGE.

Home Offices and Laboratories,  
Detroit, Michigan.

PARKE, DAVIS & CO.

# GERMICIDAL SOAP

**Antiseptic. Disinfectant. Deodorant. Sterilizer. Lubricant. Cleanser.**

Germicidal Soap combines the powerful antiseptic mercuric iodide with a soap made from pure vegetable oils.

## A FEW SUGGESTIONS.

To prepare antiseptic solutions.  
To sterilize hands, instruments and site of operation.  
To cleanse wounds, ulcers, etc.  
To lubricate sounds and specula.  
To destroy infecting organisms in skin diseases.  
To disinfect surface lesions.

To control the itching of skin infections.  
To make solutions for the vaginal douche.  
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To destroy pediculi.  
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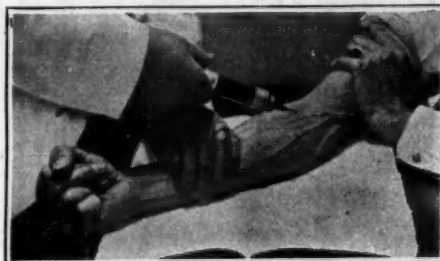
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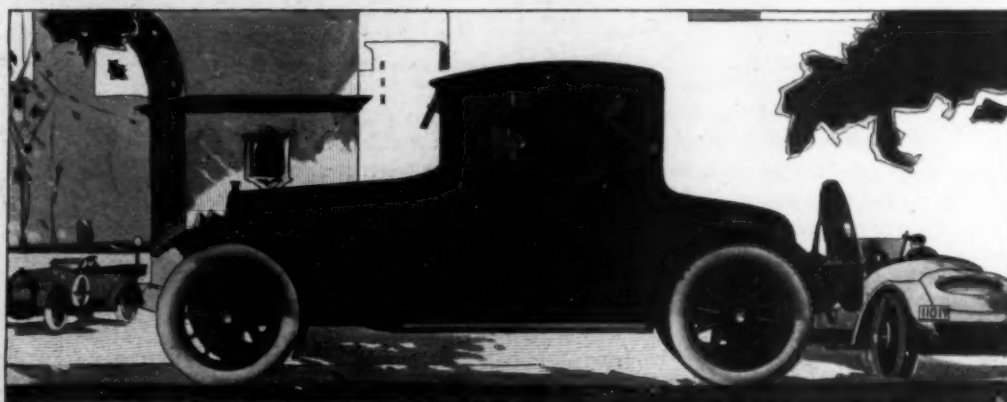
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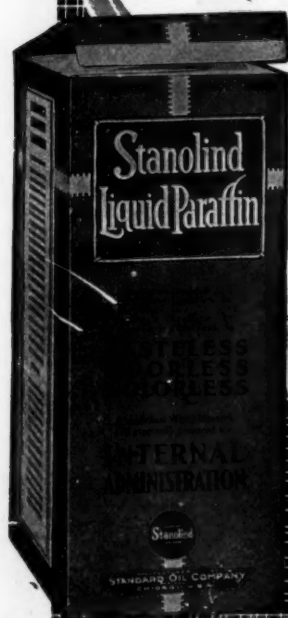
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## INDEX TO ADVERTISERS

Alkalol Company.....	8	Electro Surgical Instru-	14	Lynwood Lodge.....	31	Pompeian Company.....	34
Allison Co., W. D.....	10	ment Co.....	14	Lyster Brothers.....	14	Pond's Extract Co.....	37
Anarsarin Chemical Co...	16	Fairchild Bros. & Foster..	1	Marvel Co.....	6	Purdue, Frederick, Co....	12
Arlington Sanatorium....	32	Fair Oaks Sanatorium....	35	McIntosh Battery & Opti-		Pure Gluten Food Co....	35
Audubon Sanitarium.....	33	Farwell & Rhines.....	26	cal Co.....		Radium Sanatorium of	
Barnes Sanitarium.....	32	Fellows Co.....	1	McKesson & Robbins....	39	New York.....	—
Battle Creek Sanitarium..	27	Fisk Hospital, The.....	33	McMichael's Sanatorium..	31	Reed & Carnrick.....	39
Bauer Chemical Co.....	2	French Lick Springs Ho-		Medeol Co.....	24	Riverlawn Sanatorium....	34
Bayer Co., Inc.....	29	tel.....	7, 35	Medical Analytical Labora-		Royal Baking Powder Co.	25
Berlin Aniline Works....	—	Fuller Co., Geo. R.....	26	tory.....	35	Schoonmaker Laboratories,	
Blythewood Sanitarium...	35	Givens Sanitarium.....	36	Meinecke & Co.....	14	Inc.....	28
Borden's Condensed Milk		Goebel Brewing Co.....	14	Mellin's Food Co.....	19	Searle Co., G. D.....	13
Co.....	7	Hall-Brooke Hospital....	32	Micajah Co.....	10	Sharp & Dohme.....	20
Bristol-Myers Co.....	13,	Henry Pharmacal Co.....	4	Mitchell Motors Co., Inc.	15	Sherman, Dr. G. H.....	27
Burnham Sol. Iodine Co..	28	Hoffmann-La Roche Chem-		Mt. Pocono Sanatorium..	33	Silver Springs Sanitarium	24
Campho Phenique Co.....	36	ical Works.....	19	Mudlavia.....	31	Smith Co., Martin H....	12, 37
Chalfonte Hotel.....	36	Horlick's Malted Milk Co.	2	Mulford Co., H. K.....	11	Standard Oil Co. of In-	
Chiris Co., Antoine.....	13	Hypodermic Pharmaceuti-		New York Pharmaceutical		diana.....	30
Cocroft, Susanna.....	—	cal Institute.....	35	Co.....	17	Storm, Dr. Katherine L..	17
Columbus Medical Labora-		Indiana Springs Co.....	31	Normyl Association.....	28	Strasburgh Co., R. J....	34
tory.....	34	International Equipment		North Chemical Co.....	12	Sultan Drug Co.....	10, 16
Conroy Sanitarium.....	32	Co.....	14	Norwich Pharmacal Co...	3	Tilden Co., The.....	13, 37
Coward, J. S.....	4	Interpines.....	32	Nose-Ions Co.....	13	Towns Hospital, C. B....	31
Crest View Sanatorium...	33	Intravenous Products		Oakwood Sanitarium....	31	Trommer Co.....	21
David Laboratories, Inc....	13	Co.....	8	Oppenheimer Institute....	32	United Society of Shakers	14
Dentinol & Pyorrhoeide		Jackson Heath Resort....	34	Ostermoor & Co.....	35	Valentine's Meat Juice Co.	18
Co.....	9	Johnson & Johnson.....	23	Parke, Davis & Co.....	5	Van Horn & Sawtell....	18
Denver Chemical Co.....	37	Jones Co., Simon N.....	—	Patch Co., E. L.....	29	Wampole & Co., H. K....	26
Ditman, A. J.....	14	Lambert Pharmacal Co...	21	Peacock Chemical Co....	10, 16	Washington Sanitarium...	33
Drug Products Co.....	6	Leeds Company.....	36	Pinewood Rest.....	31	Westport Sanitarium....	32
Eimer & Amend.....	13	Lilly & Co., Eli.....	40	Platt, Henry B.....	3	Willis Sanitarium.....	33
Electro-Medical Institute..	—			Plessner Co., The Paul...	37		



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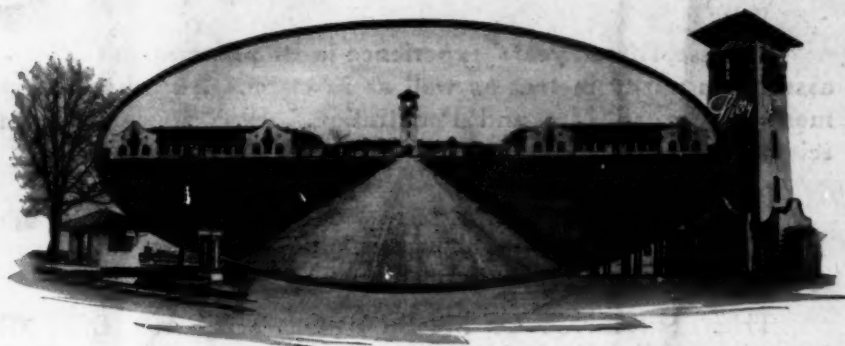
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